THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XVIII. No. 423—21st YEAR.] LONDON, JANUARY 5, 1869. [Subscription per Ann. { 15s. in Advance / 18s. Credit.] Price 6d. Unstamped.

RAMSAY'S NEWCASTLE CANNEL COAL. Analysis by Dr. FYFE, M.D.:—
9746 cubic feet of gas per ton of coal.
26-candle gas.
13¼ cwt. coke per ton of coal.
N.B.—Ramsay's Cannel most resembles the Marquis of Lothian's Cannel, but superior as to coke.
RAMSAY'S PATENT CONDENSED COKE,
DO. GARESFIELD COKE.

RAMSAY'S FIRE-CLAY ARTICLES.
GAS-RETORTS, introduced 1828.
FIRE-BRICK WORKS, established 1804.
FIRE-CLAY SANITARY PIPES, CHIMNEY-TOPS, and all Goods made of Fire Clay.
The Fire Clay is worked from Blaydon Main Colliery, is of excellent quality, and no expense spared in perfecting every article.
The FIRE-BRICKS (marked "RAMSAY") are to be seen in all parts of the world, and the works are the most extensive in the Kingdom.
Manufactories: DERWENTHAUGH, SWALWELL, and HEBBURN QUAY. Offices: BROAD CHARE, NEWCASTLE-UPON-TYNE. Address, G. H. RAMSAY.

GEORGE GLOVER & CO.,
Patentees of the Standard Gasometers for the Government, and of the
IMPROVED DRY GAS-METERS.
These Meters are warranted to measure correctly and not to vary, and have come into general use more rapidly than any Meters hitherto manufactured.

PARIS EXHIBITION, 1867.
THE TESTING-HOUSE REPORTS.
The Reports prepared for the Science and Art Department, under the direction of the Lords of the Council, detail the arrangements made for testing the gas apparatus exhibited. In the testing-house erected by the Special Committee appointed to further this object a gasholder was constructed by Mr. G. Glover, being a *fac simile* of that produced and patented by him in 1860, and deposited in the Exchequer, under the provisions of the Sales of Gas Act, and British manufacturers of gas apparatus were invited by advertisement, and by direct application, to forward worthy objects for exhibition. Mr. G. Glover was, however, the only manufacturer who sent Meters to be tested. The report states that, as "Mr. Glover is a manufacturer of Dry Meters only, no opportunity presented itself of comparing their accuracy with that of Wet Meters under various circumstances, but the perfection to which that maker has brought his Meters prevents the possibility of those extravagant errors which are well known to exist where Wet Meters are used."
Particulars and lists of prices forwarded on application to Ranelagh Works, Ranelagh Road, Pimlico, LONDON, S.W.; 15, Market Street, MANCHESTER; or 97, Boulevard de Magenta, PARIS.

COWEN'S PATENT FIRE-CLAY RETORTS.
JOSEPH COWEN and CO.,
BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,
Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS RETORTS and OTHER OBJECTS in FIRE-CLAY," and they have also been awarded in the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for "GAS RETORTS, FIRE-BRICKS, &c., for EXCELLENCE of QUALITY."
J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire-Bricks, and every other article in Fire-Clay are promptly executed at their Works as above.
COWEN'S GARESFIELD COALS.
Coal Office,
QUAY SIDE, NEWCASTLE-ON-TYNE.

FIRST PRIZE IN THE PARIS EXHIBITION.
JOHN RUSSELL AND CO.,
THE OLD TUBE WORKS,
CHURCH HILL, WEDNESBURY;
ALMA WORKS,
WALSALL, STAFFORDSHIRE;
and 69, UPPER THAMES STREET, LONDON,
Original Manufacturers of Wrought-Iron Gas Tubes and Holders of the present Patents; Inventors and First Makers of LAP-WELDED FLUES for Steam Boilers.
J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water, and the largest Orders may be executed in a few days.
Gun Metal, and all other kinds of Cocks, Stocks, Dies, and Taps, Galvanised Tubes, &c.
N.B. All Goods thoroughly Tested before sent out, and Warranted.

JOHN BENT & SON,
WET AND DRY GAS-METER
AND
STREET-LAMP
MANUFACTURERS,
BELL BARN ROAD, BIRMINGHAM.
ESTABLISHED 1830.
All materials found for the alteration of Public Lamps for lighting with the Rod. Regulators with Lava Burners.

BLAYDON BURN AND LOW BENWELL FIRE CLAY RETORT AND FIRE-BRICK WORKS,
NEAR NEWCASTLE-ON-TYNE.
WILLIAM COCHRAN CARR begs most respectfully to thank the Metropolitan, Provincial, and Continental Gas Companies for their patronage for several years past, and to intimate that he has rebuilt and enlarged his extensive premises for the Manufacture of CLAY RETORTS; and that he is now prepared to execute the largest orders with punctuality and despatch. Orders for FIRE-CLAY RETORTS, of all shapes and sizes, FIRE-BRICKS, and all other Articles in Fire-Clay, executed on the shortest notice, and on the most reasonable terms.
London Agents: JAMES LAWRIE & CO., 63, OLD BROAD STREET, CITY, LONDON.

THE "LOTHIAN" CANNEL COALS.
These Cannels are extensively used in the Gas-Works of Edinburgh, where the illuminating power of the gas is the highest in Britain.
The yield per ton is 12,573 cubic feet; illuminating power 33·8 standard candles; coke per ton 1046 lbs.
Ports of Shipment, in the Firth of Forth.

BO'NESS CANNEL COALS—This Cannel is largely used in gas-works where, in addition to high illuminating power, there exists a demand for superior Coke, it being the best Coke-producing Cannel of all Scottish Cannels. It yields about 11,000 cubic ft. of 25 standard candle gas per ton.
Ports of Shipment, either the Forth or the Clyde.
For prices and other information, apply to Mr. JOHN ROMANS, C.E., 53, Frederick Street, EDINBURGH.

NOTICE.
LESMAHAGO GAS OR CANNEL COAL.
JAMES FERGUSON & CO., Auchinheath COLLIERY, LESMAHAGO, and the NITSHILL & LESMAHAGO COAL COMPANY, AUCHINHEATH AND SOUTHFIELD COLLIERIES, LESMAHAGO, sole Proprietors and Producers of the above celebrated GAS COAL, beg to intimate to Gas Companies and other consumers that, having reason to suspect that Cannel or other Coal of very inferior quality, both as regards the quantity and illuminating power of the Gas, has frequently been mixed with and sold under the name of "Lesmahago," they have now appointed Messrs. JAMES LAWRIE & Co., of 63, Old Broad Street, LONDON, E.C., sole agents for England; and Messrs. LA COUR & WATSON, of LEITH, sole agents for foreign markets; and, in order to prevent a recurrence of the frauds named, they request that all purchasers will send their orders through the above-named firms. Orders for other than the above-named markets may be forwarded direct to either of the Proprietors.
The Proprietors will, in future, use their own forms of bills of lading, and also issue certificates of origin, signed, as the case may be, either by JAMES FERGUSON & Co., or by the NITSHILL & LESMAHAGO COAL COMPANY; and they request all consumers purchasing Lesmahago Coal to demand such a certificate for each cargo, and to observe that it corresponds with the bill of lading.
Auchinheath, Lesmahago, March, 1868.

GEORGE GLOVER & CO.,
Patentees of the Standard Gasometers for the Government,

TWO MEDALS,
LONDON, 1862.

HAVE OBTAINED THE
HIGHEST
PRIZE
FOR

SILVER MEDAL,
PARIS, 1867.

IMPROVED DRY GAS-METERS AND GASOMETERS,
AT THE
PARIS EXHIBITION.

RANELAGH WORKS, RANELAGH ROAD, PIMLICO, LONDON, S.W.;
AND 127, BOULEVARD DE MAGENTA, PARIS.

JOURNAL OF GAS LIGHTING NEWSPAPER PENNY

FRASER'S PATENT RIBBED RETORTS.

The following are taken indiscriminately from a number of testimonials as to the merits of the Fire-Clay and Cast-Iron Ribbed Retorts:—

Gas-Works, Merthyr Tydfil, Sept. 2, 1868.

Sir,—We have had 15 of your Ribbed Clay Retorts in use at these works for the past twelve months. I am happy to be able to report favourably of them. It appears to me that the Ribs afford additional strength to the Retort, whilst they render the charge porous, so that the gas is more freely disengaged from the coal, and the deposit of carbon does not take place to the same extent that it does in plain Retorts. I believe the principle of construction applied to your Retorts may be adopted for Fire-Brick Retorts and Ovens, and with results equally beneficial.—I am, sir, yours faithfully, J. L. COCKER, General Manager.

Gaslight Company, Shrewsbury, Oct. 8, 1868.

Dear Sir,—In reply to yours, I beg to state that we have nine of your Cast-Iron Ribbed Retorts at present in work. As they retain to the last the original shape, and allow the heat to penetrate the charges more effectually than those known as plain ones, we consider they are the most economical and efficient in use.

Yours very respectfully,
A. C. Fraser, Esq. S. B. DARWIN.

For further particulars, apply to A. C. FRASER, Gas-Works, COLCHESTER.

TO GAS AND WATER COMPANIES.

SECOND-HAND
FIRE AND BURGLAR PROOF
SAFES.

BEFORE PURCHASING SEND FOR
GRIFFITHS' MONTHLY LIST OF SAFES,
By Milner, Marr, Thos. Perry and Sons, Mordan, Price, Whitfield, and every eminent maker, at about half the price of new.
A guarantee given with each.
A large quantity of TANN'S SAFES from £2 10s.
Apply to GRIFFITHS, 43, CANNON STREET, E.C.

B. CARPENTER'S
IMPROVED
WOOD SIEVES FOR GAS PURIFIERS.

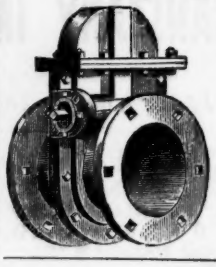
WORKS:
14, JOHN STREET, PENTONVILLE ROAD,
LONDON, N.

The above Sieves are used by the principal Gas Companies in London and the country. Their utility, durability, and cheapness combined, render them superior to all others.
Testimonials from Gas Engineers who have tested their qualities forwarded on application.
All orders punctually attended to, and estimates given if required.

WALTER MABON & CO.,
Engineers,
ARDWICK IRON-WORKS,
FAIRFIELD STREET, MANCHESTER,
MANUFACTURERS OF
IRON TANKS, GASHOLDERS,
GAS APPARATUS,
PIPES, VALVES, IRON ROOFS,
WROUGHT AND CAST-IRON GIRDER

DESIGNS, SPECIFICATIONS, & ESTIMATES FURNISHED.

REDUCED PRICES
OF
B. DONKIN & CO.'S
IMPROVED GAS-VALVES
WITH WROUGHT-IRON PINIONS,
From 2 inches to 18 inches, price 9s. 6d. to 12s. per inch diameter.



List of prices, with full dimensions of all sizes up to 36 inches, to be had on application.
These Valves are all proved on both sides to 30 lbs. on the square inch before leaving the works, and are always kept in stock.

VALVES MADE WITH OUTSIDE RACKS TO ORDER.
ALSO,
SCREW WATER-VALVES WITH GUN-METAL FACES.

B. DONKIN & CO.,
GENERAL ENGINEERS AND IRONFOUNDERS,
MAKERS OF STEAM-ENGINES,
BERMONDSEY, LONDON, S.E.

WALTER FORD,
159, GRAY'S INN ROAD, LONDON.
MANUFACTURER OF WET AND DRY GAS-METERS, STATION-METERS, GOVERNORS, &c. &c.

Sole Manufacturer of **PADDON'S PATENT STREET-LAMP REGULATORS**, for insuring any required consumption. These Regulators are in general and increasing use, and references can be given to Gas Companies who use them for every Lamp.

GEORGE ORME & CO.,
MANUFACTURERS OF
CONSUMERS GAS-METERS, STATION-METERS, GOVERNORS,
PRESSURE & EXHAUST REGISTERS,
PRESSURE-GAUGES, MINUTE-CLOCKS, PHOTOMETERS,
INDICES FOR GAS AND WATER METERS,
INDICATORS,
FITTINGS FOR RAILWAY CARRIAGES AND LAMPS,
AND EVERY DESCRIPTION OF
GAS, STEAM, & WATER FITTINGS,
ON THE MOST APPROVED PRINCIPLE.

WORKS: PARK STREET, OLDHAM.

A GREAT SAVING OF TIME, LABOUR, & EXPENSE
IS EFFECTED BY THE USE OF
PRICE'S
PATENT COAL AND COKE BARROWS.

In addition to other testimonials the following has recently been received from one of the largest Gas Companies in London:—

London Gaslight Company, Nine Elms, May 18, 1868.

Dear Sir,—The Patent Coke Barrows are a great improvement, and a saving both in time and labour.
Yours truly, D. WATSON.

They are in use in the Government, Metropolitan, and several country Gas-Works.
Manufacturers for London and South of England—PRIEST & WOOLNOUGH, KINGSTON-ON-THAMES.
Manufacturers for the Midland Counties and North of England—
THE COALBROOKDALE COMPANY, NEAR WELLINGTON, SALOP.
Manufacturers for Ireland—J. EDMUNDSON AND CO., CAPEL STREET, DUBLIN.
Communications to be addressed to the Sole Agent, R. E. KEEN, 50, Claremont Road, Surbiton, S.W.; or either of the above.

THE FARNLEY IRON COMPANY,
FARNLEY, near LEEDS,

In consequence of the increasing demand for their Retorts, have largely extended this branch of their Fire-Clay Works, and are now prepared to execute the most important orders, either for *home* or *export*, with great punctuality.
The Fire-Clay raised from the Farnley Estate (commonly called the Wortley bed) is unsurpassed by any other known in the district, and is peculiarly well adapted for Retorts, Gas-Ovens, and Fire-Bricks; and the F. I. Co. beg especially to invite those connected with Gas-Works, who have not yet used their Retorts, to be good enough to favour them with a trial.
The F. I. Co. generally hold in stock, for immediate supply, Fire-Bricks of every size and kind—Tiles, Sanitary Tubes, Ornamental Terra-Cotta Ware White Facing Bricks, the White, Buff and Salt-Glazed Bricks, &c., &c.
Prices, Drawings, and all other information may be obtained by applying as above, or to

MR. SUTTON, THE HULL STORES, 46½, QUEEN STREET, HULL.

INTERNATIONAL EXHIBITION,
1862. CLASS X.
PRIZE MEDAL
For excellence of Fire-Clay Gas Retorts, and "HONOURABLE MENTION" for good quality of Fire-Bricks.
WILLIAM STEPHENSON & SONS,
THROCKLEY,
NEWCASTLE-ON-TYNE.

JAMES NEWTON & SONS,
(Established 1820,)
FIRE-BRICK AND TILE MERCHANTS,
Wholesale and for Exportation,
FALCON DOCK, 78 AND 79, BANKSIDE,
SOUTHWARK, LONDON, S.E.,
DEPÔT for STOURBRIDGE AND NEWCASTLE FIRE-BRICKS, LUMPS, TILES, and FIRE-CLAY, and every Article suitable for
GAS AND WATER WORKS.

HANCOCK'S INDIA-RUBBER GAS-TUBING.
All sizes, from ¼ in. to 4 in. diameter and upwards.
Also,
HORSE SINGEING APPARATUS, best make, with GAS-BURNERS, COMBS, and INDIA-RUBBER TUBING, all complete.
INDIA-RUBBER BAGS for GAS-MAINS.
WASHERS for GAS and STEAM JOINTS.
VALVES (pure solid Rubber) for STEAM-ENGINES.
PACKING (Elastic) for STEAM-ENGINES.
FLANGE TUBING, for excluding Draughts and Dust through WINDOWS, DOORS, and GLASS CASES.

Section.
Illustrated Price Lists on application.
JAMES LYNE HANCOCK,
Vulcanized India-Rubber Works,
GOSWELL MEWS, AND 266, GOSWELL ROAD
LONDON, E.C.

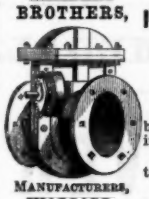
Established 1811.
READY & SON,
BILSTON STREET BRASS FOUNDRY,
WOLVERHAMPTON,
MANUFACTURERS OF
SUN BURNERS, GAS CHANDELIERS,
ALL LANTERNS, BRACKETS, PENDANTS
And every Description of
GAS-FITTINGS,
Including
MEDIÆVAL FITTINGS for CHURCHES, &c.
Large Pattern Books complete, with Book of Prices, 7s. 6d.

STOURBRIDGE FIRE-CLAY WORKS.
E. BAKER & CO.,
24 WHARF, HARROW ROAD, PADDINGTON, W.
FIRE-BRICKS, LUMPS, SQUARES, and TILES of all dimensions.
GAS-RETORTS always in stock.
GARDEN EDGINGS of various patterns.
ORNAMENTAL BUILDING BRICKS.
GRATE BACKS in various designs.
Contracts entered into to set Retorts, erect Furnaces, &c.
Shipments on the shortest notice.
Makers of A. C. FRASER'S Patent Ribbed Retorts and Brick Ovens.

HOPKINS, GILKES, & CO.,
LIMITED,
MIDDLESBOROUGH,
SUPPLY GAS AND WATER PIPES OF EVERY SIZE,
Plain, Turned and Bored, and Coated.
CAST-IRON RETORTS.
Castings for Gas-Works of every description.
EXHAUSTERS.
LONDON OFFICE: 95, CANNON STREET.

TO INVENTORS AND PATENTEES.
MR. W. H. BENNETT, having had considerable experience in matters connected with Gas, Water, and Sanitary Improvement, begs to say that he continues to assist Inventors in the perfection of their designs, and to obtain for them PROVISIONAL PROTECTION, whereby their invention may be secured for Six Months; or LETTERS PATENT, which are granted for Fourteen Years.
Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.
Patents procured for Foreign Countries.
Information as to cost, &c., supplied gratuitously upon application to the advertiser, 42, Parliament Street, WESTMINSTER. [Office of the JOURNAL OF GAS LIGHTING, &c.]

Trade Mark. THE MEDAL FOR 1862.
THE ONLY PRIZE MEDAL AWARDED FOR TUBES AND FITTINGS.
CROWN TUBE-WORKS,
WEDNESBURY STAFFORDSHIRE.
WAREHOUSE—81, UPPER GROUND ST., LONDON.
JAMES RUSSELL & SONS,
Patentees and First Makers of Wrought-Iron Tubes.

LAMBERT BROTHERS,

MANUFACTURERS,
WALSALL.
REDUCED PRICES OF
IMPROVED GAS-VALVES
WITH WROUGHT-IRON PINIONS,
2, 2½, and 3 in.... 12s. per in.
4 in. to 6 in..... 11s. „
7 in. to 12 in..... 10s. „
These Valves are all proved on both sides to 30 lb. on the square inch before leaving the works.
Valves made with outside racks to order.
Also Water-Valves, with gun-metal faces and gun-metal screws.

TO GAS COMPANIES AND THE TRADE.
J. DEFRIES & SONS,
MANUFACTURERS OF
CRYSTAL, BRONZED, & ORMOLU CHANDELIERS;
IMPROVED CRYSTAL STAR & SUN LIGHTS;
VESTIBULES,
IRON BARREL, COMPOSITION TUBING,
AND
GAS-FITTINGS OF EVERY DESCRIPTION.
WORKS:
LONDON, BIRMINGHAM, AND PARIS.

REGISTERED CRYSTAL CHANDELIER.
Special Designs prepared in perfect accordance with architectural arrangements. Estimates furnished for the Lighting and Fitting up of Theatres, Music-Halls, and Public or Private Buildings with Gas.
GAS MOONS OF THE NEWEST DESIGNS.
The Patent Gas-Regulator & Purifier reduced to 6s. 6d. per Dozen.
Pattern Books of Gas-Fittings, Crystal and Ormolu Chandeliers for 1868, are now complete.
CITY SHOW-ROOMS & MANUFACTORY,
147, HOUNDSDITCH.

THOMAS EDINGTON & SONS,
PHŒNIX IRON-WORKS,
GLASGOW,
Manufacturers of all kinds of
GAS AND WATER PIPES,
Branches, Bends, Water-Traps, Tank-Plates, Valves, and general Castings. Also
RAILWAY CHAIRS & SLEEPERS,
AND
GRIFFIN'S PATENT PERMANENT WAY.
London Office, 63, Old Broad Street.

BELGIAN CLAY RETORTS.
J. SUGG and CO., late ALBERT KELLER, Ghent.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Messrs. Sugg, of Ghent, beg to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by them. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.
Communications, addressed to J. SUGG and Co., GHENT, will receive immediate attention.

C. & W. WALKER,
IRONFOUNDERS,
MIDLAND IRON-WORKS, DONNINGTON,
NEWPORT, SHROPSHIRE,
CAST EVERYTHING USED in GAS-WORKS;
MAKE AND ERECT GASHOLDERS
OF ANY MAGNITUDE;
CAST-IRON GASHOLDER TANKS,
PIPES, & LAMP COLUMNS.
They ask especial attention to their
Important Improvements in Purifiers,
CONDENSERS, SCRUBBERS, & IRON ROOFS.
WALKERS' GAS-VALVES,
WOOD PURIFIER GRIDS,
PORTABLE STEAM BOILERS for GAS WORKS
ETC.
LONDON HOUSE:
8, FINSBURY CIRCUS, LONDON, E.C.

W. J. HOLLANDS,
IRON MERCHANT,
31, BANKSIDE, LONDON, S.E.
SOCKET, FLANGE, HOT-WATER PIPES, AND ALL CONNEXIONS; RETORTS, HYDRAULIC MAIN, LAMP-COLUMNS, &c.; AND EVERY DESCRIPTION OF CASTINGS AND WROUGHT-IRON-WORK FOR GAS AND WATER-WORKS, STEAM, AND GENERAL PURPOSES.
N.B.—All goods kept in stock, and supplied at wholesale prices. Estimates given, and orders by post punctually attended to the same day.

JAMES OAKES and CO.,
ALFRETON IRON WORKS, DERBYSHIRE,
AND
WENLOCK IRON WHARF, 20, WHARF ROAD,
CITY ROAD, LONDON,
Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water-Works, including Iron Retorts, Socket and Flange Pipes, Bends, Branches, and Syphons of all sizes, Lamp Columns, &c., &c.
N.B.—Orders for Cast-iron Tanks, Girders, Columns, Cylinders, and all irregular castings, will have immediate attention.
CHARLES HORSLEY, Agent.

JAMES M'KELVIE,
CANNEL COAL MERCHANT,
HAYMARKET,
EDINBURGH.
Established 1840.

FIRE-CLAY GAS-RETORTS, &c., CANNEL AND STEAM COALS.
WILLIAM FRASER, Inverkeithing (owner of the Works at which Fire-clay Retorts were first made), having greatly enlarged his works, can supply retorts and other fire-clay goods to any extent.
References can be given to managers of above a hundred Gas-Works whom he supplies.
WILLIAM FRASER ships COWDENBEATH PARROT COALS at Charlestown and Burntisland at 12s. per ton; and HALBEATH STEAM COALS, on Navy List, at 8s. 6d. per ton.

D. BRUCE PEEBLES,
Gas-Meter Manufacturer,
FOUNTAINBRIDGE
EDINBURGH.

J. T. B. PORTER & CO.,
GAS ENGINEERS,
MANUFACTURERS AND CONTRACTORS FOR GAS-WORKS
Of any extent at Home and Abroad,
GOWTS BRIDGE WORKS, LINCOLN,
AND
JOHN STREET, ADELPHI, LONDON, W.C.

ALFRED PENNY, Gas and CONSULTING ENGINEER,
WENLOCK IRON WORKS,
21, WHARF ROAD, CITY ROAD, LONDON.
Mr. PENNY having had a large experience in the construction, alteration, and management of Gas-Works, begs to inform the Directors of Gas Companies that he may be consulted on all matters appertaining thereto. He also manufactures Gasholders, Purifiers, and all the various apparatus used in Gas-Works, and keeps in stock Retorts and Mouthpieces, Socket-Pipes, Bends, Branches, T-pieces, &c. &c.
Plans, Specifications, and Estimates prepared.

ADDISON POTTER,
WILLINGTON QUAY,
NEAR NEWCASTLE-UPON-TYNE,
Manufacturer of Clay Retorts, Fire-Bricks, and every description of Fire-Clay Good

THE

UNIVERSAL EXHIBITION OF PARIS,

1867.

SILVER MEDAL.

THOMAS GLOVER & CO.,

DRY GAS-METER MANUFACTURERS,

214 TO 222, ST. JOHN STREET, CLERKENWELL GREEN,

LONDON,

HAVE BEEN AWARDED THE HIGHEST PRIZE FOR

DRY GAS-METERS,

BY THE IMPERIAL COMMISSIONERS FOR THE

UNIVERSAL EXHIBITION, 1867.

WILLIAM PARKINSON AND CO.

(SUCCESSORS TO SAMUEL CROSLEY),

PATENT WET AND DRY GAS-METER MANUFACTURERS, &c.

COTTAGE LANE, CITY ROAD, LONDON, E.C.

Established 1816.

PATENT IMPROVED WET METER.

W. P. and Co. invite especial attention to this Meter, which entirely overcomes the difficulty to which ordinary Wet Meters are subjected, owing to the short range of the Float, which is necessary, in order to meet the requirements of the Sale of Gas Act.

"It is well known that n Meters constructed so that the valve will close when the water is drawn off to such a point as to render them 3 per cent. slow the lights are liable to be extinguished by the closing of the valve by a sudden increase of pressure. To meet this difficulty, Mr. Pinchbeck has invented an ingenious and simple arrangement by which the action is reversed, and any such increase of pressure, in his Meter, raises the value instead of depressing it. The fact of the improvement having been adopted by Messrs. W. Parkinson and Co. is a sufficient guarantee that it practically and effectually remedies the inconvenience it is designed to meet."—JOURNAL OF GAS LIGHTING.

PATENT IMPROVED DRY METER,

Which W. P. and Co. pledge themselves to manufacture with the same quality of materials and workmanship as in their Wet Meter, thereby giving Gas Companies and others the advantage of procuring a first-rate Dry as well as a Wet Meter, which, hitherto, they have been unable to do.

STATION-METERS AND GOVERNORS.

Which can be seen at all the London Gas-Works. Also Liverpool, Manchester, Sheffield, Nottingham, Belfast, Glasgow, Birmingham, Dublin, Bristol, Leeds, Leicester, Brighton, Southampton, Sunderland, Wolverhampton, Bradford, Norwich, &c., &c.

TEST GASHOLDERS, EXPERIMENTAL METERS, EXHAUSTER REGULATORS,

MINUTE CLOCKS, PRESSURE GAUGES, PHOTOMETERS, PRESSURE REGISTERS, &c.

CONTENTS.

	PAGE
Notes upon Passing Events:—	
Death of Sir Richard Mayne	5
The Police Force of the Metropolis	5
Opening of the Kensington and Westminster Railway	6
Mr. Hawkshaw's Railway Schemes	6
The Metropolitan Board of Works in the City	6
Chambers of Agriculture	7
The Game Question	7
Leading Articles:—	
The Sheffield Case	8
Death of Mr. George Lowe	9
Circular to Gas Companies:—	
Instructions from the Gas Referees under the City of London Gas Act, 1868	10
Presentation of a Testimonial to Mr. Blackburn, Honorary Secretary to the Gas Managers Association	10
Appointment of the Arbitrators and Umpire in the Dundee Gas Reference	10
Correspondence:—	
The Coke Trade	10
Register of New Patents:—	
Applications for Letters Patent	11
Grants of Provisional Protection	11
Notices to Proceed	11
Patents which have become Void	11
Miscellaneous News:—	
Meeting of the Bombay Gas Company	11
Instructions for the Gas Examiners	13
British Association of Gas Managers—Testimonial to Mr. James Blackburn	14
Dr. Frankland's Analysis of the Metropolitan Waters in December, 1868	15
Private Street Bars	22
The Solar Heat	22
Improvements in Pillar-Lamps	22
New Gas-Works in Bedfordshire	22
Return by the Metropolitan Association of Medical Officers of Health of the Average Composition and Quality of the Metropolitan Waters in December, 1868	22
Share List of Provincial Gas Companies	16
Share List of Water Companies	20
Share List of Metropolitan Gas Companies	21
Price Current	21

ERRATUM.

In the fifth line from the bottom of Mr. Saunders's letter on the coke trade, inserted at page 905 of the last number, *for* "500 at 8s., £400," *read* "500 at 8s., £200."

SPECIAL NOTICE.

Subscribers who have not paid their subscriptions for the year 1868, or for any previous years, are requested to remit the same forthwith, in the manner indicated below, in order to prevent any interruption in the regular delivery of the JOURNAL; and such subscribers as desire to avail themselves of the reduction by paying in advance must do so in the course of the month of January.

The subscription to the JOURNAL is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders should be made payable at the Money-Order Office, London, to William B. King, 11, Bolt Court, Fleet Street, by whom the business department of the JOURNAL is conducted.

THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, JANUARY 5, 1869.

Notes upon Passing Events.

THE death of Sir Richard Mayne has imposed a serious responsibility upon the Home Secretary at the same time that it has relieved him of a great difficulty. Sir Richard Mayne had for forty years done his duty with extraordinary industry and energy. He had proved himself an able administrator, but circumstances had grown too much for him, and the public had begun to get tired of the London prefect of police. To select his successor will be a difficult task, because his qualities must be taken largely on trust. Perfection requires at least two single gentlemen rolled into one. He must have a good deal of the lawyer's training to enable him to master and exercise the numerous Acts of Parliament which he is required to put in motion. He must have the knowledge of an experienced police magistrate or master of a criminal prison in order to understand how to deal with the large criminal class which it is his business to control. He must have something of the training of a soldier to enable him to command a force which necessity has made semi-military. With these varied arts and accomplishments he will not succeed without temper, tact, calm decisive judgment, and a certain careful fluency in answering the numerous deputations and applications, to whose assaults his office must be always open. He must watch and attend to the current of public opinion without that nervous thin-skinnedness which makes an official unhappy under the attacks of every penny-a-liner. He has to keep a record of every important matter in his department, and yet to avoid the curse of officialism—the burying of real activity under a mass of questions and reports. The only statesman we can call to mind whose knowledge, temper, tact, and personal popularity with his subordinates would have made him a first-rate prefect of police was Lord Palmerston. The head of the metropolitan police has, amongst other matters, two duties of an essentially different character, yet closely allied, to perform—two duties which become more difficult every day in the metropolis, for reasons we pointed out in our last "Notes." First, he has to keep the peace—to enable the peaceable inhabitants to pursue their business or pleasure without molestation from the numerous tribes of loafers and roughs, the scum of idle people who gravitate to a great city, and are apt to seize on the occasion of a crowd to indulge in brutal tricks that grow into riots. A heavy and new duty is also imposed on the police by the management of street traffic. Now, these are duties in which military training is useful—in fact, essential. Policemen must learn to act together and singly, and unless the public is prepared to be ridden roughshod by the "rough" and the criminal class, the police must be supported much more vigorously than they have been in the struggles of brute force against law. A certain class of politicians, whose sympathies lay with the Hyde Park rioters, and whose instincts, consciously or unconsciously, drift towards revolution, are in the habit of expressing their dislike to the semi-military training the police have received. They say cutlasses are not required to deal with burglars. Well, not often, although in New York the police carry revolvers; but in the present growth of the rough element they may require cutlasses to put down a riot. At the risk of alarming the sympathies of the humanitarians, we maintain that if in the Irish rows that occur in certain slums cutlasses were drawn and used to the extent of cutting, and not thrusting, it would save many lives and limbs even of the rioters. Many a row would be stilled when the police "drew their swords." Take, for instance, the case of the day when robbery was triumphant while a militia regiment marched, drums beating, along; half a dozen policemen, with drawn cutlasses, would have stopped "the ugly rush." For the same reason the police should be carefully trained and encouraged in every kind of gymnastic and athletic exercise, so as to make each member of the force as least as formidable as the fighting costermongers and navvies they have to encounter. But next beside the open avowed ruffians, who are not all of the criminal class, but of the Irish class, the sailor class, the navvy class, and the costermonger class, there are the professional thieves—from the incipient criminal in the shape of a boy pickpocket, up to the thrice-convicted ticket-of-leave burglar—who will do any violence if he thinks it will give him a chance of escape. To watch, baffle, and arrest these foxes and wolves of civilized society, requires a sort of intellect and training quite different from that which makes the steady, sober, courageous, patient guardian of order in the street, and to select them is needed a chief or chiefs capable of appreciating the cat-like acuteness of the born thief-taker. In the metropolitan police there are a certain number of men with the fox-terrier capacity amongst what are called the plain-clothes or detective police. The question is, whether there are enough of these men; whether they are sufficiently encouraged; and—which is scarcely a police question—whether professional criminals are not too much protected by the laws meant for the protection of honest men.

The question of the adequacy of the numbers of the metropolitan police has lately been treated in a pamphlet by "Custos," which seems, to borrow a French term, to have been *officiously*, if not officially inspired, and which contains some useful facts, with conclusions from which those who do not prefer the forms of military discipline to real order will be inclined to dissent. We may learn a lesson from the treatment of crime in the border towns and new settlements of the great American Republic. There the democratic liberty that extends even to the election of magistrates and judges, often ends in the criminal class getting the upper hand of the honest and peaceable citizens. All attempts to bring the law into force to

repress crime fail. At length the honest people lose all patience; establish a "vigilance committee;" and, suspending for a time the common law by a sort of democratic *coup d'état*, shoot, hang, and expel the murderers and robbers, who, under cover of nominal law, have been the tyrants of the settlement. Of course we do not want vigilance committees in England, but we must relax the extreme delicacy with which we guard the liberty of the subject—that is, of all subjects. There is no real reason for the extreme jealousy of police interference which was necessary before publicity had been so firmly established by the public press. As every man who is arrested must be brought before a magistrate, who sits in public, under the note-book of industrious reporters, and as the newspapers are open to every correspondent, there is a protection against the abuse of power far more efficient than the letter of any law framed by continental jurists on the model of our old "Habeas "Corpus." We may safely trust our liberties to the protection of the Argus eyes and Briareus hands of paid and unpaid newspaper contributors—the light infantry who protect the more solid fortifications of our courts of law and powers of Parliament. The area under the supervision of the metropolitan police embraces an area of 700 square miles! The area of the City of London is about one square mile and a half, and contains fully fifty streets. Now, "to protect a square "mile, between ten o'clock and six o'clock in the morning, "six men are available for every square mile; between seven "and ten at night, three men to every square mile; and "between six in the morning and seven in the evening, "1·5 men to every square mile."* The metropolitan force, exclusive of the City, averages 6800. Every constable can resign on giving a month's notice, and the average number of resignations every year amounts to over 1000. If, then, every householder is to find a policeman whenever he wants, or fancies he wants one, it is evident a very large increase must be made in the force, the expense of which it is more easy to calculate than to decide where the money is be raised; and, if the force is to be made of a less fluctuating character, it can only be by making the service more attractive in pay and pensions. The idea of enlisting police-constables, like soldiers, for a term of years, is out of the question. An unwilling policeman on a duty in which zeal is essential, would be an absurdity. Probably one of the most economical encouragements to private policemen would be found in providing them with lodgings at a cheap fixed rate. Lodgings are one of the greatest difficulties of every man in London at weekly wages. We do not suggest the construction of costly barracks, although, by adding a storey, every new police-station might find accommodation for a few single men, paying a rent which would probably meet the interest of the additional cost. But, without undertaking a building investment, the superintendents of each division might be authorized to hire suitable houses or rows of cottages, according to the precedent afforded by the proprietors of great factories and mines, and underlet them to the best married men of the force. At present many good men are led to resign, when married, by difficulties about lodgings. The attraction of a pension or increase of pay is obvious; but then comes the constantly recurring question, where is the money to come from? But "Custos," after passing lightly over the improvement of the condition and attractions of the force, concentrates his chief energy in an attempt to prove that it would be well to increase the number of officers by recruiting from the regular army. We do not believe that this suggestion will hold water for a minute, when submitted, as it must be, to the investigation of a parliamentary committee. It is contrary to one of the most important principles on which the metropolitan police force is founded. At present all the superior officers—viz., sergeants, inspectors, and superintendents—are promoted entirely from the ranks, after an examination before each remove. The theory seems sound that an officer in command of police should have experience which can only be obtained in actual service. It seems inconsistent, when there is a very general feeling in favour of promoting deserving soldiers from the ranks in time of war, and even (very foolishly, as we consider) in time of peace, that a proposal should be made to shut out a class of men from promotion who are, as a body, very superior in education and intelligence to the ordinary soldier. We are not prepared to take the Hyde Park riots as a precedent. If it be necessary to act at all when a Beales has excited and a Bradlaugh has declared himself ready to lead a mob of fanatic politicians, supported by the floating body-guard of roughs and thieves, it will be better to call on cavalry and infantry to act than to set up a small army of policemen to be pelted. Superintendents of police are men thoroughly trained to their duties, and—although it suits "Custos" to put them socially on a level with serjeant-majors in our over-officered army as regards social position—they know their duties a great deal better than many lieutenant-colonels whose rank has been obtained by the power of purse. The superintendents have too much writing to do; the assistance they really require is that of a superior clerk and shorthand-writer. As to their not being fit to be trusted to deal with nighthouses and brothels, that is a most insignificant part of their duty, and there is no reason to believe that it would be better or more honestly done by the needy sort of military officers who would descend to accept police pay. The question of the police management will probably form an early subject of parliamentary investigation, which may end in an increase of numbers, pay, and pensions; but we do not expect to see places provided for well-connected military officers, with all their business, except that of leading a company against a rabble, to learn.

* "The Police Force of the Metropolis." By Custos. Ridgway.

The close of the old year has been marked by the opening of a short length of railway of extraordinary importance in proportion to its mileage—the bit from Kensington to Westminster, completing two-thirds of the circle round London. The Metropolitan Company is now able to show how an omnibus line of railway will work. Very wisely, as we think, one uniform rate of fares has been adopted for each class for the whole distance; with the addition of return-tickets available between any stations, the scheme will be perfect. The success of the Westminster extension will, no doubt, secure the early continuation to Cannon Street, and easy communication with all the south-side railways, even if some delay for financial reasons should occur in the execution of the complete link of the circle through Tower Hill. For all practical purposes, the inner circle will be complete when it reaches from Moorgate Street, round Brompton, Kensington, and Westminster, to Cannon Street, because, from either side of the City, every five minutes a train will be starting for all the stations. One more important link is required to make a complete communication between the Underground and the North London, or outer circle, either from King's Cross or Clerkenwell to Highbury, so as to put Broad Street and its system in direct relation with the inner circle. There would then only remain a link to give the Great Eastern a connexion with all the metropolitan stations to make our system of London railways all but perfect. It is most satisfactory to find that the period of depression in railway extensions is bearing such good fruit. The two lines most obstinate in neglecting or refusing to connect themselves with central railway stations have at length made good working arrangements. Thus the London and North-Western, which would give no encouragement to the Underground, and therefore has no Euston Square Station to match the King's Cross Station, has followed up the City Terminus in Broad Street by a traffic treaty that unites it with Victoria Station by way of Willesden. Thus all Belgravia and Westminster is saved the dreary journey on wheels over the stones to Euston Square, and all the dwellers near the South Coast lines may, if they can fill a carriage, run direct from, say, Brighton to Birmingham, Liverpool, or Manchester—an enormous step in advance in railway policy. In like manner the South-Western, which was relying on a line of penny one-horse omnibuses for a convenient connexion with the Strand, has now concluded an alliance under which its passengers can book and travel at choice from Charing Cross and London Bridge. It seems as if railway directors, restrained from new schemes of extension, and compelled to do something to preserve their reputation, were turning their serious attention to the increase of profits by increasing the conveniences of traffic. In answer to the parrot-like iteration of Mr. Williams and the school of Railway Reformers, whose only text is the hidden value of Government management of railways, we should be content to rely on three railway maps—one of London and its railways in 1858; one of the same city in 1868; and one of Paris and its railways at the close of the same year.

With respect to Mr. Hawkshaw's magnificent scheme of a Mid-London line from Bayswater to the Commercial Docks, to be executed without disturbing the traffic of the streets, it

sounds more like one of Mr. Brunel's dreams than the serious plan of an experienced engineer who has got well on toward his threescore and ten years. Mr. Hawkshaw's other scheme for tunnelling from Dover to Calais makes one doubt whether, after a life of pure prose, he is not going to imitate the aged poet Rogers, and follow the "Pleasures of Memory" with the "Pleasures of Imagination." We can only hope that the project is not too good to be true, and that shareholders will be found with faith to carry it out, for certainly no Government will be found equal to this railroad of the future. London has shown that it can support the most expensive systems of construction. The railroad of the future for our rural districts must be on the cheap system of light rails and light trains and engines now in course of execution in the Ryde and Newport Junction, in the Isle of Wight. The elephant drawing a wheelbarrow will not pay where the traffic depends on agricultural produce and rural passengers. The problem is to utilize the unused highways, and find the funds in the localities served. For this purpose a very narrow gauge and light rails should be studied.

The space for the new street from Blackfriars to the Mansion House has been all but cleared away, and the Corporation of London now sees its enemy, the Metropolitan Board of Works, making an open and visible sign in the centre of its municipal power. An inquiry into the cost and results of municipal legislation cannot be long delayed. The Metropolitan Board has just made a report of the work it has done since its constitution. The list is formidable, and the economy with which the machinery for so much work has been kept going is even more depressing to the citizen who sees with regret the rise of a formidable rival. Mr. Ayrton, as a member of the Crown, is silenced for the present, but his successor, whoever he may be, in the new Parliament, will deal a damaging blow to City self-complacency if he should ascertain, in a relentless Joseph Hume sort of style, what is the work the City does, and what the fixed plant of officials and committees costs to do it. Take a year, or an average of five or ten years; put down the titles of all the City officials, their salaries, and duties; add the names of the various committees, and their allowances and printing expenses; follow the work of each year through, distinguishing between real work and the volumes of mere talk; and you will find that the vast army of talkers who preside over one and a half square mile of houses, afford, like Falstaff, a halfpennyworth of bread to a gallon of sack. That is the weak point of the City of London. The Metropolitan Board has no ancient dignities to fall back on, no hospitality to bestow; but then it has no officers who do not work, no cats except to catch mice. The Metropolitan Board is poor and low in credit, but all its funds go in real work. Its business is to be busy, its policy to find every year some new work to do. The policy of the City of London is never to do anything that it can help, and then only under protest. Its very last work in the last session of Parliament was to resist the inevitable Foreign Cattle Market, just as it resisted the removal of Old Smithfield to Copenhagen Fields, and still resists the demolition of that standing nuisance, Leadenhall Market. For these reasons, unless the Corporation is reformed after the model of Liverpool and Bristol, it will sink into a mere dining institution, while real power will pass into the hands of bodies created to work much and talk little. The Mansion House Street completed, will be a standing menace to municipal muddlers.

English farmers, unlike Scotch farmers, are, with rare exceptions, entirely dependent on their landlords, and receive handsome subsidies for their obedience in farms held at low rents. The Scotch farmer has a lease, and pays a rack rent; the English farmer is a tenant-at-will, and is allowed from 15 to 25 per cent. for doing as his landlord bids, although, in nine cases out of ten, he is more conservative, more prejudiced against all changes except agricultural changes, than the squire. Recently tenant-farmers, worked upon by the influence of daily papers and railroad travelling, have begun to rebel a little. A few more active spirits have founded clubs, called Chambers of Agriculture, for the ventilation of their special grievances. To these chambers members of Parliament and gentlemen desirous of becoming county members have attached themselves, and with the help of manufacturers connected with agriculture in everything but politics, have given them a degree of importance which we scarcely expect to see them retain. The farmers have had difficulty in making out a list of grievances of general interest, because the most serious do not depend on legislation at all, but on the bargains they make in taking their farms. The Central Chamber of Agriculture, in its annual report, asks for a change which would place the county expenditure under the control of a body partly elective instead of under that of county magistrates. The sum involved in this taxation is very trifling, but the claim will probably be allowed, and a certain number of representatives chosen by the ratepayers will sit with the magistrates and discuss the expenditure on police, gaols, and lunatic asylums. Our first-class tenant-farmers, in ordinary education, manners, and appearance, are not to be distinguished from small squires, and in business habits are often superior to the clerical and small squire magistrates. The change will give satisfaction; but, looking at the usual subservience of farmers in the presence of landlords, we expect to see little change. Occasionally a bold speaker will upset a little job.

With respect to game, and especially ground game, it has become, under the influence of the battue system and the custom of letting shooting to strangers, a great nuisance. But as long as farmers are willing to rent farms without having any control over the game, we do not see what change in the laws will benefit them, unless it be a law declaring game vermin, and that is not likely to pass even as regards rabbits and hares. If farmers could and would combine to make excessive game preserving a political crime to be punished at elections, they would be able to put it down; but as they always vote most willingly for the game preserver, and are content, after grumbling at their clubs, to grin and bear, we expect that the nuisance of game will long continue to be a stock subject at agricultural clubs where landlords are not present. In Scotland it is different. The farmers there have shown they will and can return a mere dummy or an English stranger in preference to the lord or the laird of the soil. The Scotch landlords will have to compromise the quarrel, unless they would lose all political influence and the means of providing through Ministers of State for younger sons. As to the malt-tax, it is an impost which affects Scotland and Ireland not at all, and only in a very limited district in England. Neither the north, where farm labourers drink buttermilk and no beer, nor the south-west cider counties, nor the many counties where no beer-making barley is grown, nor the pasture counties of England and Wales, care twopence for the malt-tax, which is really paid by the men in towns who drink the beer. Unless, therefore, it can be turned into a beer-tax, it will remain a whip to be used on occasion to torment a free-trade Chancellor of the Exchequer. The fact is that farmers have benefited more by reduction of taxation than any other class. In the last generation, in return for the high war prices, they were the great milch cows of the taxation which ground their labourers into paupers. The list of taxes paid by the farmer and the farm labourer in 1822 when war taxes remained while war prices had disappeared is quite appalling. The then Duke of Buckingham estimated the taxes paid by a farmer and his wife, one woman, and three men servants, at £33 per annum, but this, as William Cobbett showed in his rough way, was ridiculously under the mark. Out of this list six have been totally repealed—viz., salt, which figured for £7 10s., hops, leather, candles, soap, wearing apparel, and windows; while the taxes on malt, tea, sugar, and spirits, have been largely reduced—tea by 2s., and sugar by 2d. per pound. The tax on the labourer on a miserable scale of consumption exceeded £10 a year. At this time there were taxes on wool and woollen goods, on raw cotton, on the colours for dyeing, and on the printed calicoes; and of course there were the charges of collection, and the addition the tradesman and manufacturer made for the capital sunk in taxes. For there was, "even for the hat, a tax on the fur, tax "on dye, tax on oil, tax on bristles that make the brush"—in a word, "two-thirds of the cost of clothes was tax." At present the income-tax, which does not fall on the labourer, is the only compulsory tax, and that the farmer pays on half his rent, and so need render no accounts. The indirect taxes remaining are malt, tea, sugar, spirits, wine, and tobacco; the tea reduced in price from 7s. to 2s. a pound, while cocoa is absolutely free, with all other imported articles of food. This steady course of repeal of taxes in favour of the farmer and the labourer, at the price of a permanent income-tax, is often forgotten by those who take their knowledge of politics from yesterday's newspaper. The real agricultural grievance is that the tenant-farmers prefer to be tenants at the will of their landlords, and they make the landlords pay for the luxury.

THE SHEFFIELD CASE.

THE importance attached to the Sheffield case, as a precedent in determining the rights of gas companies to lay down mains without parliamentary authority, has been increased by the confirmation of it by the Lords Justices in the case of the Cambridge Consumers Company; and it is so frequently referred to that it seems desirable to reproduce the principal facts and the points on which the decision depended, so as to recall to mind the actual bearings of that long-contested question.

The two gas companies authorized by Parliament to light the town of Sheffield amalgamated in 1844, and from that time continued their operations as the United Sheffield Gas Company. They had undisputed possession of the lighting of the town until the year 1851, when, unfortunately for all parties, Mr. Flintoff succeeded in raising a Consumers Company, of which he was the secretary, to supply Sheffield with gas at 3s. per 1000 feet, the price then charged by the United Company having been much higher. The new company were very popular. Among the shareholders were many members of the Town Council and of the Trustees of the Highways, and by a majority of the latter the company were authorized to break open the pavement to lay their mains. The United Company took the opinions of the then Attorney-General and Solicitor-General (the present Lord Chief Justice of the Court of Queen's Bench and the Lord Chancellor) and of Mr. Overend on the question whether Boards for the repairs of the highways in Sheffield had any power to grant the new company permission to lay their mains or pipes on the highways or public streets. Their united opinion was that the Boards for the repairs of the highways had no such power. The United Company consequently determined resolutely to resist any attempt on the part of the new company to commence operations in the streets, and applied to the Vice-Chancellor's Court for an injunction to restrain them. The cause came on for hearing before Vice-Chancellor Sir George Turner on the 22nd of May, 1852, Sir W. Page Wood being the leading counsel for the United Company. On the second day of hearing the Vice-Chancellor delivered his judgment, which was to the effect that the plaintiffs had not made out a sufficient case for an injunction. The principle on which that judgment was founded has been supported by several subsequent decisions on all the important points. The Vice-Chancellor said that before a court of equity would interfere in such a case it ought to be clearly proved that irreparable injury would be the necessary consequence of the act required to be prevented, and that there was no sufficient remedy by law to redress the injury about to be done. The court must, therefore, be satisfied, not merely that the injury would be done, but that it would not be adequately compensated by damages at law. To induce a court of equity to interfere there should be a case clearly established of continual recurring injury, whereas the affidavits of at least twenty witnesses, including one by the late Mr. Clegg, were adduced to prove that the injury to be done by the new company's works would only be trivial and temporary. With respect to the objection that the new company had no legal authority for breaking up the pavement, the Vice-Chancellor said that the United Company were not the parties to controvert that question, which should be taken up, if at all, by the owners of the soil, or by the Attorney-General on behalf of the public; for the plaintiffs were applying solely on the ground of injury threatened to themselves, which might turn out not to be of such a nature as to justify interference.

The United Company, with the view of meeting the objection that the application for an injunction was instigated only by interested motives, induced the Attorney-General to join with them in a second application to the same Vice-Chancellor, on the ground that the works of the new company would inflict injury on the public. The case was argued at great length on the 29th of July, 1852, and the Vice-Chancellor, after taking five days to consider, pronounced his judgment to the same effect as before. He expressed the opinion that the defendants gained no legal right to break up the pavement by the permission of the surveyors of the highways to do so, and that if they did it would amount to a public nuisance for which they might be proceeded against in a court of law. The question, however, for a court of equity was, whether the nuisance, if it were a nuisance, would be so extensive and of such a nature as to induce the court to prevent it; and the motion was refused.

The United Company then appealed to the Lords Justices, before whom the case was brought three days afterwards—Lord Justice Knight Bruce and Lord Cranworth presiding. After lengthy arguments by counsel, Lord Justice Knight Bruce pronounced judgment. He said that, in his opinion, the question of private right afforded no sufficient ground for granting an injunction; and, as regarded the question of public injury, it should be taken into consideration that a majority of the Town Council and of the inhabitants of the town were in favour of what the new company proposed to do; and though that circumstance might not be material if what was proposed were of a dangerous or mischievous description, the evidence did not show it to be so, and though probably it might be in law a nuisance, it would not be of such a character as to interfere with the comforts or convenience of life. Lord Cranworth concurred in that opinion, and the motion was refused, with leave to the parties to try the question in a court of law.

The contest between the companies was then transferred from the courts of equity into the streets, where active bodily warfare with pickaxes and spades was for some time carried on to the great annoyance of the peaceable inhabitants. The new company broke ground and commenced laying their mains on the 1st day of October following the decision in their favour in the court of appeal; and in three days time they had completed the work for a distance of 50 yards, and had dug a trench of the same length. The managing director of the United Company engaged a number of men, who went to the spot some hours before daylight on the fourth day, and filled up the trench and repaved the road. When the new company's men went to work, finding the trench filled up, they recommenced digging it; but as fast as they made the trench it was filled up by the opposing party. In the midst of the struggle the managing director of the United Company drove up in a cab, and was very roughly handled by the mob, having had a narrow escape of being thrown into the river. The magistrates in vain attempted to pacify the contending parties, and to put a stop to such disgraceful proceedings, but the new company would not desist from their work. The United Company then summoned some of the men so engaged before the magistrates, for obstructing the highway, and three of them were convicted, and fined 40s. each. The United Company also took proceedings against the directors of the Consumers Company, against Mr. Flintoff (the secretary), and against the chairman and two of the trustees of the highways. At the Doncaster Sessions true bills were found against them all. The cause was referred to the assizes, when verdicts were given against three directors of the company and against the chairman of the Highway Board. That verdict was appealed against in the Court of Queen's Bench, in June, 1853, before Lord Campbell, Mr. Justice Erle, and Mr. Justice Crompton, when, after long arguments, the motion was dismissed with costs. After that decision the Consumers Gas Company resolved to discontinue laying their mains until they had obtained the authority of Parliament to continue their works. That authority they did not obtain, for the committee to whom their Bill was referred recommended amalgamation with the United Company, which was ultimately arranged; the result of the agitation for cheap gas, and its attendant litigation, having been the addition of £50,000 of dividend-bearing gas capital, for which the consumers have had to pay.

In the recent decisions in the equity courts, in the case of the Cambridge Consumers Company, the precedent of the Sheffield case was attempted to be overruled by Vice-Chancellor Malins, who relied strongly on the opinion expressed by Lord Justice Knight Bruce when the United Sheffield Company applied a second time for an injunction, while the proceedings in the law courts were pending. On that occasion Lord Chancellor Cranworth and Lord Justice Turner were against granting the injunction, but Lord Justice Knight Bruce was in favour of the application, on the ground that the opening of the streets would be a continually recurring nuisance. The judgment of Vice-Chancellor Malins was, however, unanimously overruled on appeal by the Lords Justices, on the 23rd ult., and the Sheffield case has been fully reinstated as an authority to be confidently referred to. It is thus established that the opening of the streets to lay mains or pipes by any company not properly authorized is a public nuisance, the remedy for which must be sought in a court of law and not in a court of equity.

DEATH OF MR. GEORGE LOWE.

ANOTHER of the distinguished men who passed their lives in developing the applicability of coal gas to the purposes of illumination is no more. Mr. George Lowe closed his long, valuable, and honourable career on Christmas Day, at his residence in St. John's Wood Park, in the 80th year of his age, but his name will be imperishably engraved in the annals of gas lighting. He had long suffered from a tendency to congestion of the lungs, and his life had been prolonged only by the most careful precautions, which latterly involved almost entire seclusion; but to the last he retained the cheerful and genial disposition which had endeared him to a large circle of professional and private friends, and which secured respect even from those who differed from him. Rivals or enemies he had none, and he has descended to the grave at a mature old age, beloved, honoured, and lamented by all.

Mr. Lowe's father was a brewer at Derby, and his son George was for some years engaged in the same occupation. His attention was at the same time directed to the illumination by coal gas, which was being rapidly developed and extended, and several articles written by him on the subject in Tilloch's *Philosophical Magazine*, which appeared about fifty years ago, showed that he had considered the subject with a clear and comprehensive mind. The knowledge he displayed of the science of gas-making seemed to fit him peculiarly for undertaking the duties of gas engineer, and in 1821, he was appointed one of the engineers of the Chartered Company, which was then beginning to make known the advantages to be derived in the metropolis from the introduction of gas lighting. That office he continued to hold until the year 1862, when, in consideration of his long and valuable services, the directors of the company gave him a retiring pension equal to the full amount of his salary. Mr. Lowe married about three years before his engagement as engineer to the Chartered Company, and he lost his wife, to whom he was devotedly attached, in 1843.

In conjunction with the late Mr. Telford and Mr. (afterwards Sir William) Cubitt, Mr. Lowe aided in the formation of the Institution of Civil Engineers, and he was for many years a member of the council of that institution. In 1835 he was elected a Fellow of the Royal Society, for which honour he was indebted to the production of Prussian blue from ammoniacal liquor and from the refuse lime liquor of gas-works, specimens of which made by him attracted the notice of the Duke of Sussex, who was at that time president of the society. Mr. Lowe entered actively into various fields of scientific inquiry, and was elected a Fellow of the Geological, of the Chemical, and of the Microscopical Societies, and he was also elected a corresponding member of the Franklin Institute, which was an honour he much prized, it having been conferred on him altogether unsolicited. In addition to the responsible office of engineer of the Chartered Company, Mr. Lowe fulfilled at the same time the duties of consulting engineer of the Imperial Continental Gas Association, of the European Gas Company, of the Dublin Alliance Gas Company, and of many other gas companies at home and abroad.

The activity of Mr. Lowe's mind developed itself in numerous inventions for improving the manufacture and the illuminating power of gas, of which the Patent Office contains the records. The first invention patented by Mr. Lowe was that known as his "reciprocating retort," dated October 12, 1831. In that invention long retorts were first employed. The usual charge of coal was put in at each end of the retort to half its length, so that the gas of inferior illuminating power evolved from the charge of coal first introduced might mix with the richer gas evolved from the charge introduced subsequently. The same patent comprised the introduction into the furnace of highly heated atmospheric air, for the purpose of igniting the gases and vapours arising from the lime and ammoniacal liquors placed under the bars of the furnace, the products of which were to be conducted into condensers to produce sulphurous acid, to be afterwards applied to purifying the gas. The specification of the patent further included a means of generating hydrogen gas by passing steam through the incandescent coke withdrawn from the retorts, the gas produced being afterwards enriched by the process since called carburetting.

In the next patent, dated June 9, 1832, the process of carburetting was applied to increase the illuminating power of ordinary coal gas, and with it was combined a process for the production of Prussian blue from ammoniacal liquor and from the refuse lime liquor. A third invention included in the same patent consisted in a means of collecting the tar of different degrees of specific gravity, by self-acting syphons placed at different parts of the condenser.

Seven years afterwards a joint patent was obtained in the names of George Lowe and John Kirkham, which comprised five inventions. The first was a modification of Mr. Lowe's reciprocating retort applied to a combination of several retorts. The second invention was a combination of clay and iron retorts, which principle has since been extensively amplified by others. The third related to a mode of applying heat to retorts, during the first hours of distillation, by means of a blast of air into the ash-pit of the furnace. The fourth invention consisted in a mode of employing tar as fuel, by mixing breeze with the tar, which was then introduced into a retort, and the distilled products were conveyed by a pipe to the fire in the furnace. The fifth invention specified in the same patent consisted in setting the retorts nearly vertically, and so arranged as to be charged at the upper ends, and from time to time drawn at the lower ends. The novelty of this invention is described as consisting "in so constructing such "retorts as to cause the gas evolved from the fresh charges to "descend, and pass amongst the highly heated charges, and "mix with the gas evolved therefrom."

In March, 1841, Mr. Lowe was again in the Patent Office, with an invention for "improved methods of supplying gas "under certain circumstances, and of improving its purity and "illuminating power." The specification of this patent was divided into five parts, the three first of which related to improvements in gas-meters, and included Mr. Lowe's motive-power meter, and a means of purifying gas in passing through meters by the introduction into them of alkaline solutions. The fourth part related to the purification of gas in dry purifiers, by causing the gas to pass over a series of shallow trays, containing sponge impregnated with a caustic alkaline solution. The fifth part of the invention consisted in a mode of increasing the illuminating power of coal gas, by passing it over similar shallow trays containing sponge impregnated with naphtha.

A fifth patent, dated Oct. 8, 1846, was granted to Mr. Lowe for "Improvements in the manufacture and in burning gas, and in the manufacture of fuel." In this invention blocks of dried peat were immersed in melted resin or pitch in a closed vessel, from which the air was pumped out, to form a material for making gas. It included, also, the application of revolving perforated pipes for distributing water or purifying liquor in gas washers; and the improvements in burning gas consisted in the adjustment, by screws, of the air supplied internally and externally to the flame of an Argand burner, a button being employed internally to deflect the air on to the flame, and the conical shape of the chimney caused the current of air to be directed on the flame externally.

The last appearance of Mr. Lowe's name in the records of the Patent Office is on the 20th of January, 1852, when, in conjunction with Mr. F. J. Evans, he patented an invention for the purification of gas by "anhydrous peroxide of iron," the energies of which might be renewed again and again by exposure to the atmosphere. This patent was dated four days before that of Mr. Hills for the purification of gas by hydrated oxides.

These various patented inventions for improving the manufacture of gas prove that Mr. Lowe's powers of mind were remarkably active and inventive, and that he possessed extensive knowledge of the principles on which the production and purification of gas depend. It will be seen from this cursory survey of his ingenious and well-devised plans that many subsequent inventors and patentees have derived from Mr. Lowe not only their ideas but the methods by which they were practically applied. In addition to those inventions which he secured by letters patent, Mr. Lowe contrived many other very useful appliances which he gave to the public, among which is the bladder-valve, that is found so useful in preventing the escape of gas during the laying of mains; and his "jet photometer" is to be found in all well-managed gas-works. It is not, however, by his inventions alone that Mr. Lowe's influence on the progress of gas lighting is to be estimated. His sound judgment, his varied and practical scientific knowledge, rendered him an authority to be applied to in all questions of doubt; whilst his amiable disposition and courteous manners imparted additional value to his opinions and advice. We fear it will be long before the profession of gas engineering will adequately supply the place once filled by the lamented George Lowe.

Circular to Gas Companies.

The gas referees appointed by the Board of Trade in compliance with the City of London Gas Act, and with the 109th section of the Chartered Gas Company's Act of last session, have issued their instructions for the gas examiners, which will be found in another part of our present number. The instructions prescribe with much minuteness the mode to be adopted for testing and recording the illuminating power and purity of the gas, and bear internal evidence that they are the result of great practical knowledge of the subject. They commence by stating the mode and times of testing for illuminating power. The Act prescribes that the testing is to take place between the hours of five in the afternoon and ten; all testings during the daytime, when the gas is almost stagnant in the mains, having been avoided, and the gas referees have further restricted the time, until the end of March, from five to eight, the hours of greatest consumption. There are to be four testings within the four consecutive hours, and each is to include ten observations, made at intervals of one minute, the Bunsen photometer now generally used being the measuring instrument, and two of the ordinary sperm candles, each consuming 120 grains per hour, burned together, are to constitute the standard of comparison. Directions are given for weighing the candles after each testing, and for ascertaining the temperature and the pressure of the atmosphere before each observation, the bulk of the gas operated on during the experiment being corrected by means of a given formula to agree with the standard of 30 inches barometrical pressure, and 60° of temperature. The average of each set of ten observations is to be taken as representing the illuminating power during that testing, and the average of the four testings is to represent the illuminating power of the day. In testing the purity of the gas, as no trace of sulphuretted hydrogen is allowed, the most rigorous test is applied to ascertain its freedom from that impurity. All the gas consumed in testing for illuminating power is to be passed through an apparatus in which strips of bibulous paper moistened with a solution of acetate of lead are suspended, and they are to be exposed to the action of the gas during the whole experiment, any discoloration of the paper being considered conclusive of the presence of sulphuretted hydrogen. There is some vagueness in regard to the duration of the exposure of the test-papers to the gas, but it seems to be intended that it should be continued during each set of photometrical observations, or for at least ten minutes. The testing for other sulphur compounds is to be made with Dr. Letheby's sulphur test, each experiment to be continued for nearly 24 hours. The opinion of the gas referees respecting the uncertain nature of the results of all the apparatus now used to determine the quantity of sulphur in gas is evidenced by their hesitation to fix the amount of such impurity to be tolerated, until a more certain mode of testing can be devised. In the meantime the amount of sulphur, as indicated by Dr. Letheby's test, is to be merely recorded, no penalty being incurred whatever may be the quantity. The testing for ammonia is to be continuous, like that for sulphur, and the tolerated amount is not to exceed 5 grains in 100 feet. The accuracy of the meters used for measuring the gas during the various testings is to be proved, by means of a special apparatus, at least once in seven days; it being directed that wet meters only are to be employed in testing the gas. Five appendices accompany the instructions of the gas referees, for the further guidance of the examiners in using the tests for sulphur and for ammonia, and for facilitating the correction of the volume of gas at different temperatures. The gas referees have assumed that the persons appointed as gas examiners will have had sufficient experience in testing gas to know how to manipulate the apparatus usually employed for the purpose, and they have, therefore, confined their instructions chiefly to the methods and processes respecting which there may be various opinions, so as to establish uniformity of practice. Some of the instructions have been cavilled at as unsatisfactory, but we believe that they will be generally approved, and will be adopted by gas examiners in most parts of the kingdom.

The official auditor, also appointed by the Board of Trade under the City of London Gas Act, has issued his proposed form of accounts, but we are compelled by want of space to defer reprinting it until our next number. The late Government, previous to quitting office, fixed the salaries to be paid to the principal officers who are to carry out the provisions of the Act. Each of the three gas referees is to receive a salary of £600 a year, and the chief gas analyst and the official auditor are each to have a salary of £400. These salaries, amounting to £2600 per annum, exclusive of charges for clerks, office rent, &c., have to be borne by the gas companies, and will form a heavy item in their expenditure. No gas examiner has yet been appointed by the Corporation, so that for the present the preparations made by the officers appointed by the Board of Trade to put the City of London Gas Act in operation are of no avail.

A gratifying testimonial of esteem and respect has been presented to Mr. Blackburn, late honorary secretary of the British Association of Gas Managers, on his resignation of that office to enter on the duties of engineer-in-chief of the Oriental Gas Company, at Calcutta. A meeting of the members of the association was held in the board-room of the Oriental Gas Company, on the 22nd inst., at which the testimonial, consisting of a highly finished binocular microscope and a purse of 100 sovereigns, was presented to Mr. Blackburn, by Mr. Goddard, the president of the association, for which Mr. Blackburn returned his grateful acknowledgments, amidst the loud applause of the members assembled. After the business for which the meeting was held had been satisfactorily completed, it was proposed by Mr. Esson and seconded by Mr. Fraser that Mr. W. H. Bennett should be appointed *pro tem.* to succeed Mr. Blackburn in the office of honorary secretary of the association, which was unanimously agreed to.

In the matter in dispute between the Dundee Gas Commissioners and the Dundee Gas Company, Mr. Hawkins, Q.C., has been appointed arbitrator on behalf of the commissioners, and Mr. Hawksley on behalf of the gas company; and they have agreed to appoint Mr. George Pownall, the eminent surveyor, as the umpire.

Correspondence.

THE COKE TRADE.

Sir,—Many of your readers must feel obliged to your correspondent, Mr. Saunders, for opening up what is to them a periodically troublesome question. I hope—and it is with this view that I beg to say a few words upon the subject—that those who are successful in the disposal of their coke will give their less fortunate brethren the advantage of their experience.

In South Shields, just over the workings of one of the largest Durham collieries, we have, by constantly watching the markets, and cultivating the trade, gradually raised the price of coke since I first became connected with the company at the beginning of 1864, from about 3s. 9d. per ton to 7s. 6d. until very recently. In doing this we have advertised, suggested its use where not before employed, allowed discounts to large consumers, and now do so to the dealers. We store through the winter, and any surplus we dispose of away from the town.

It is in the disposal of this surplus that especial care and attention should be given, for it is in the sale of this that the price, not only of those making the sale, but those also producing surplus stock, is affected. In many districts there are what may be called surplus markets, or well-known outlets for surplus stock. The demands of these markets are, more or less, fixed and constant. To force them there must, therefore, be a loss sustained by the producer; the consumption being that of manufactories it will not be affected by price. Now, what is the working of these markets but that of an active, injurious competition—a sacrificing, as in a case with which I am acquainted, for 4s. what another company was getting 8s. for? Surely there should be some arrangement to modify such forced sales and lessen such losses. And what better arrangement could be made than that which at once suggests itself—an understanding between gas companies naturally connected by district to make these markets subservient to the *correction* of stock for *all* the works united in the district, instead of unduly lowering that of *one*? Such a principle is no new or untried one. Other trades combine, and are united for the regulation of price, &c., and so, doubtless, gas companies could do with considerable benefit, both pecuniarily and in working, and in meeting with greater regularity the fixed or constant demand. The markets being thus somewhat regulated, it is probable the price in some of the towns might be raised, as well as the general average increased. There would have to be in such arrangement an adjustment of prices, relative cost of labour, and compensation for disproportioned works, and some trifling details, perhaps, besides would have to be arranged.

With a simple organization there could also be a united and continuous effort made to bring the advantages of coke for domestic purposes before the public; circulars could be printed and distributed, with result of experiments made at the common cost; purposes for which the coke is applicable, and statements of where and for what purposes used. What is required is, that in every

district the true and *full value* of gas coke in that district should be realized, and the *cost of storing reduced to a minimum*, and to effect this *all* the works in a district must be worked as a WHOLE, and for this purpose they must be united. W. J. WARNER.

South Shields, Jan. 2, 1869.

Register of New Patents.

APPLICATIONS FOR LETTERS PATENT.

3857.—THOMAS BACHE SALTER, of West Bromwich, in the co. of Stafford, manufacturer, and JOHN SILVESTER, of West Bromwich aforesaid, manufacturer, for "*Improvements in pressure or steam gauges.*" Dec. 18, 1868.

3868.—JOSEPH BRIERLEY, of Blackburn, in the co. of Lancaster, civil engineer, for "*Improved apparatus for facilitating the ventilation of sewers and drains, and the discharge of noxious gases therefrom, and for preventing the ingress of such gases to houses or buildings.*" Dec. 19, 1868.

3879.—ROBERT WILSON, of the Bridgewater Foundry, Patricroft, near the city of Manchester, engineer, for "*Certain improvements in machinery or tools for cutting metals and other materials, part of which is applicable to hydraulic and other machines.*" Dec. 21, 1868.

3894.—PIERRE GABRIEL JARRE, of 37, Boulevard Bonne Nouvelle, Paris, in the empire of France, engineer, for "*A hydro-pneumatic pump.*" Dec. 21, 1868.

3895.—WILLIAM EDWARD GEDGE, of the firm of John Gedge and Son, of 11, Wellington Street, Strand, in the co. of Middlesex, patent agent, for "*An improved construction of cock or tap.*" A communication. Dec. 21, 1868.

3896.—JOSEPH BREEDEN, of the firm of J. and W. Breeden and Booth, of Birmingham, in the co. of Warwick, manufacturers, for "*Improvements in taps or valves for liquids, gases, and vapours.*" Dec. 21, 1868.

3909.—FREDERIC NEWTON GISBORNE, of 445, West Street, in the co. of Middlesex, for "*Improvements in means or apparatus for generating gas used for heating and lighting, and in means for heating by gas.*" Dec. 22, 1868.

3910.—JOHN SNAPE, of Mountain Ash, near Aberdare, South Wales, mechanical engineer, for "*Improvements in pumps or apparatus for drawing and forcing fluids, particularly applicable to the ventilation of mines.*" Dec. 22, 1868.

3914.—JOSIAH GEORGE JENNINGS, of Palace Wharf, Lambeth, in the co. of Surrey, sanitary engineer, for "*Improvements in apparatus for treating sewage, and for irrigating land with sewage and other waters.*" Dec. 22, 1868.

3929.—ALEXANDER MELVILLE CLARK, of 53, Chancery Lane, in the co. of Middlesex, patent agent, for "*Improvements in gas-burners.*" A communication. Dec. 23, 1868.

3940.—ALFRED COLERICK PILLINER, of the Oakfield Works, near Newport, in the co. of Monmouth, civil engineer, and JAMES CHARLES HILL, of the same place, ironmaster, for "*Improvements in machinery for obtaining motive power, applicable also to measuring, raising, exhausting, forcing, and compressing fluids.*" Dec. 24, 1868.

3952.—CHARLES DENTON ABEL, of 20, Southampton Buildings, Chancery Lane, in the co. of Middlesex, patent agent, for "*Improvements in the manufacture of wrought-metal pipes, and in the apparatus employed for that purpose.*" A communication. Dec. 29, 1868.

3954.—ALEXANDER BROWNE, of the firm of Browne and Co., of 49, King William Street, in the City of London, patent agents, for "*Improved methods and processes of manufacturing illuminating gas, and apparatus to be employed therein and therefor, and in treating the products of such processes to improve and increase their commercial value.*" A communication. Dec. 29, 1868.

3974.—EUGENE THEODORE NOUALHIER, of Paris, in the French Empire, manufacturer, for "*Improvements in apparatus for supplying, blowing in, and exhausting air, producing draught, and ventilating.*" Dec. 30, 1868.

3975.—JOHN GEDGE, of Leo House, Addington Square, Margate, in the co. of Kent, patent agent, for "*Improvements in the manufacture of gas apparatus or fittings.*" Dec. 30, 1868.

GRANTS OF PROVISIONAL PROTECTION.

2939.—PETER SPENCE, of Newton Heath, Manchester, in the co. of Lancaster, manufacturing chemist, for "*Improvements in the manufacture of copperas, applicable to the purification of illuminating gas and to other purposes.*" Sept. 26, 1868.

3457.—CHARLES JONES, of Ealing, in the co. of Middlesex, surveyor, for "*Improvements in the treatment of sewage.*" Nov. 13, 1868.

3777.—HENRY LAW, of 15, Essex Street, Strand, in the co. of Middlesex, civil engineer, for "*Improvements in water-closets.*" Dec. 12, 1868.

3806.—ALEXANDER BAUMANN, of Heilbronn, Wurtemberg, but now residing in Cecil Street, in the co. of Middlesex, for "*Improvements in pressure-governed slide-valves.*" Dec. 15, 1868.

3812.—MILES LOCKHART, of Douglas, in the Isle of Man, for "*Improved means or apparatus for ventilating, chiefly applicable to chimneys.*" Dec. 15, 1868.

3843.—GEORGE HENRY BENSON, of Staleybridge, in the co. of Chester, engineer, and WILLIAM GEORGE VALENTIN, of the Royal College of Chemistry, chemist, for "*Improvements in the generation or production of combustible gases, and in the apparatus employed therein.*" Dec. 17, 1868.

3868.—JOSEPH BRIERLEY, of Blackburn, in the co. of Lancaster, civil engineer, for "*Improved apparatus for facilitating the ventilation of sewers and drains, and the discharge of noxious gases therefrom, and for preventing the ingress of such gases to houses or buildings.*" Dec. 19, 1868.

3894.—PIERRE GABRIEL JARRE, of 37, Boulevard Bonne Nouvelle, Paris, in the empire of France, engineer, for "*A hydro-pneumatic pump.*" Dec. 21, 1868.

3896.—JOSEPH BREEDEN, of the firm of J. and W. Breeden and Booth, of Birmingham, in the co. of Warwick, manufacturers, for "*Improvements in taps or valves for liquids, gases, and vapours.*" Dec. 21, 1868.

NOTICES TO PROCEED.

2481.—JOHN BROADFOOT, of Glasgow, in the co. of Lanark, N.B., plumber and brassfounder, for "*Improvements in water-closets.*" Aug. 8, 1868.

2525.—WILLIAM PAYNE, of Balham, in the co. of Surrey, for "*Improvements in steam-cocks or valves, also applicable for hot or cold water.*" Aug. 12, 1868.

2598.—ALEXANDER ROLLASON, of 123, Pembroke Road, in the parish of Clifton, in the city and co. of Bristol, chemist, for "*Improvements in purifying coal gas, and obtaining ammonia from coal-gas products.*" Aug. 20, 1868.

2608.—THOMAS WEBSTER RAMMELL, of 3, Westminster Chambers, in the co. of Middlesex, civil engineer, for "*Improvements in rotary or centrifugal machines for acting upon air, water, and other fluids, and communicating motive power thereby.*" Aug. 21, 1868.

2851.—WILLIAM HALL, of Wilford Street, in the town and co. of the town of Nottingham, for "*Improvements in rotary engines to be worked by steam or other fluid, and which are also applicable to be used in raising or forcing fluids.*" Aug. 26, 1868.

Miscellaneous News.

BOMBAY GAS COMPANY, LIMITED.

The Half-Yearly Meeting of the Shareholders of this Company was held at the City Terminus Hotel, Cannon Street, London, on Thursday, Dec. 24—D. T. EVANS, Esq., in the chair.

The CHAIRMAN said there were probably some shareholders then present who were not present at the first of the half-yearly meetings, held twelve months previously; it might be as well, therefore, to state the object of these meetings, and to explain that on these occasions the directors were unable to furnish a balance-sheet and statement of accounts. Carrying on a business of great magnitude, at a distance from England of 10,000 miles, and having a large quantity of coals, fittings, and other materials in store, it would involve too great an expenditure of time and money to take the stock and make up the accounts oftener than once a year. The object, therefore, of these meetings was that the directors might, under the provisions of the Articles of Association, declare such interim dividend as they felt justified in declaring, and might have the opportunity of coming in contact with the shareholders and laying before them such information as they possessed as to the position and prospects of the company. With the assistance of the secretary, he had prepared a statement which he thought would prove interesting to the meeting, and would afford the shareholders a fair means of judging of the rate of progress the company was making, the cost of the production of gas, the quality of the gas they were supplying, and much other information which he was sure would be acceptable and useful. He would explain, in passing, that the returns possessed by the directors extended down to the end of October, and embraced a period of ten months, and he thought it desirable to contrast the ten months of this year with the ten months of last year, as affording the best means of measuring their progress; and first, with reference to the coal carbonized, the quantity during the first ten months of this year was 5207 tons, costing £15,137, at an average cost per ton of £2 18s. 1d. No doubt this was a very high price, but it must be remembered that the coal they had been burning during the period under consideration was coal which was ordered when freights and coal were at very high figures. Prices were now fortunately lower, and the company would get the benefit of them. The above figures showed that the consumption of coal was something over 500 tons a month. During the ten months ending Oct., 1867, the production of gas was 42,189,000 cubic feet; during the corresponding ten months of the present year the production was 43,678,000, showing an increase of 1,489,000 cubic feet. The quantity of gas sold during the ten months of last year was 37,189,860 cubic feet; during the ten months of this year it amounted to 39,353,200, showing an increase of 2,163,340 cubic feet. The leakage and condensation during the ten months of last year was 4,462,800 cubic feet, or at the rate of 10½ per cent. of the gas made; this year it was 4,324,800 cubic feet, being at the rate of 10 per cent., and showing a decrease of 138,000 cubic feet. Last year the number of public lights (taking the same ten months as before) was 2308; this year the number was 1730, showing a decrease of 578, and a consumption of 1,714,360 cubic feet of gas. He should explain to the meeting that the municipality of Bombay had thought fit, in consequence of the company having raised the price of gas to 7 rupees per 1000 feet, to reduce the number of the public lights to the extent he had just mentioned. The directors of the company found themselves, with reference to the supply of gas to Bombay, in this position, that whereas in this country, as a general rule, the proportion of the public lights did not average one-fifth of the whole, in Bombay two-thirds of the gas company's revenue, if they were to get anything to make a dividend, must come from the municipality. Supplying the municipality at 6 rupees, they found they could make nothing like a satisfactory dividend for the shareholders, and therefore in October, 1866, they served the municipality with a notice, that if they consumed gas after a certain date they must pay for it at the rate of 7 rupees per 1000. That was the scale upon which they were now paying, but he was happy to say the reduction in the number of the public lights had reached its minimum, and orders had been given not to discontinue any more. Indeed, he had no doubt that hereafter they would be largely increased. The number of private lights last year was 8675; in the ten months of this year it was 11,623, being an increase of 2948, representing a consumption of 3,877,700 cubic feet, which was rapidly increasing. Turning to the question of income, he might mention that the gas-rental for the ten months ending October last year was £23,643; in the ten months of this year it was £27,374, showing an increase of £3731. The next consideration was the residual products. He had mentioned at previous meetings that the company were not able to utilize their waste products as many other companies were, there being no chemical works in Bombay. The consequence was that the ammoniacal liquor was entirely lost, although for their tar and coke they did get a fair return. The coke

sold in the ten months ending October, 1867, was 1342 tons; in the ten months of this year it was 1545 tons. Last year it realized £3562, at an average per ton of £2 12s. 4d.; this year it had realized less in fact per ton, but more in amount, the returns being £3959, at an average of £2 11s. 2d. per ton, showing an increase in the receipts of £397. The price of coal in Bombay had been falling for some little time past, and, as the shareholders very well knew, the price of coke must bear a relation to it. It had been, as he believed, at its lowest, and was now improving. With reference to the tar, last year, during the ten months, the company realized £452; this year they had realized £1086, being an increase in their favour of £634. He now came to the very important question of dividend. The shareholders would remember that last year the directors declared a dividend of 4½ per cent. upon the year's working. Towards that there was carried forward to the credit of profit and loss from the year preceding £2219 18s. 10d., and there was made by the sale of coal and other matters, to which he need not more specifically allude, £4488 2s. 1d., giving a total of £6708 in aid of the dividend. This year they had no profit to divide from the sale of coal, nor, in fact, any profit at all except from the sale of gas, and the balance of undivided profit carried forward from the last year to the present was only £138. But although these appeared rather unfavourable circumstances, there was this to encourage them, that whatever dividend they were able to pay had been earned by the legitimate sale of gas. The 4½ per cent. which was paid last year arose partly from the sale of coal; the 4 per cent. which the directors hoped they would be able to pay this year was entirely from the sale of gas. The profits realized during the ten months to the 31st of October last on gas and products only, so far as it could be estimated, exclusive of wear and tear and depreciation, and any profit which might be realized on fittings, was £8643, while last year it was only £3620; so that there was an increase of profit on the present year's working of £5023. Referring now to the question of fittings, he might state that in order to promote the sale of gas as much as possible, and to increase the number of their customers, the directors had reduced to a minimum the profits upon fittings, and by the labour of putting them up there was a small loss. The amount required to pay the dividend which he should presently announce was £3833. The amount of "Bad debts," so far as they could be ascertained for the ten months of this year, was £114 15s. 8d., and the amount of discounts and allowances to customers, £271 8s. 5d. The company, he regretted to state, had lost, by the defalcation of a collector, £84. This man, who was said to be a European, but who was in reality half-caste, was employed as fittings clerk, and also in the collection. His default amounted to £584, but the company had a guarantee for him from the European Assurance Company for £500, so that the company could only lose £84, even if nothing more were recovered. He had now laid before the meeting such particulars as it struck him would be of interest to the shareholders, and as were necessary to put them in possession of the circumstances surrounding the company. It must be remembered that they had had to pass through a year of considerable adversity. Freights had been high, coals had been dear, and exchanges had been unfavourable. These things were, however, now improving. Again, it should be borne in mind that, though the progress of the company had not been so rapid as they could wish, it had been uniformly steady, and still gave promise of improvement. With the better tone of monetary affairs now prevailing in Bombay; with coals and freights lower than they had been since the company was established; with residual products rising in value; with the reduced cost of manufacture, owing to the increased consumption of gas; and with the expenses generally cut down as much as possible, he thought they had reason to regard the future, not merely without apprehension, but with hope and confidence. He believed next year's working would give them an improved dividend, and that the following year's would be still better. He had now to announce the declaration of an interim dividend of 1¾ per cent., being 1s. 8d. per share on the £5 shares, and 1s. per share on the £4 shares. This dividend would be regarded as up to the 30th of June last, at which time only £3 per share had been paid upon the £4 shares; the dividend would, therefore, only be payable on that amount. The directors declared this interim dividend in the conviction that they saw their way to 4 per cent. upon the whole year, if not something a little better. In conclusion, he wished to say that there had been the expression of a wish on the part of some of the shareholders that the board should be strengthened by the addition of a director of commercial experience. In that view the directors themselves concurred, and he was desired by them to say that, as there was a vacancy at the board which they were anxious to fill by the appointment of a gentleman of mercantile and shipping knowledge, they would be pleased to receive the name of such a shareholder properly qualified for election at the general meeting in June next.

Mr. RANSFORD said, if the dividends hitherto received had been paid out of profits, he could not understand what the necessity was for the last call upon the £4 shares.

Mr. H. P. STEPHENSON said it was very difficult to follow the figures given by the chairman in his speech, so as to form anything like a correct judgment as to the real position of the company. He wished very strongly to press upon the directors the desirability of having a half-yearly report prepared and circulated among the shareholders for some little time before the meetings, so that they might come prepared to understand the subjects in which they were interested, and to ask such questions as they felt to be necessary for the elucidation of their affairs. He was himself connected with several gas companies, and from experience he was satisfied that it was most advantageous both to shareholders and directors to have half-yearly reports, while it operated as a check upon the officers in the working of the concern. No doubt he would be met with the statement that this would involve a great deal of trouble and a certain amount of expense, and that in a company whose works were at such a distance there would be a difficulty in getting the accounts over in time. As to the first objection, it was answered by the fact that all the great metropolitan gas companies had half-yearly accounts, and it certainly could be no more trouble to take stock and balance books in Bombay than in London. And as to the second objection, he might state that, as chairman of the Singapore Gas Company, he had experienced no difficulty in getting the accounts over sufficiently early to hold the half-yearly meeting in November. That was a company with £60,000 capital and £8000 or £10,000 rental, and if they found no difficulty in the matter there could be no reason why the Bombay Company, with £30,000 rental, should not be able to do it two months later in the year. He did not intend to propose a formal resolution on the subject, but he wished to ask the serious attention of the directors to it.

Mr. LAURIE said the proposition seemed to him a most excellent one, and he could conceive nothing better calculated to keep the management of affairs in Bombay in good order than the fact that periodical stock-takings were made, and the accounts balanced at short intervals. The company had to congratulate themselves in having recovered £500 of the large defalcation to which the chairman had referred, but he thought that, if half-yearly accounts and stock-takings had been the rule, the dishonesty of the collector would have been detected before it attained such proportions. Referring to the appointment of a new director, he expressed a hope that, in addition to mercantile knowledge, the candidate would possess the qualification of a large stake in the company.

Mr. STEPHENSON CLARKE was not satisfied with the progress of the company, and thought it desirable that an investigation should take place, that they might ascertain to what the fault was attributable.

Mr. DEELEY said the London Gas Company, of which he was an auditor, had their accounts made up half-yearly, but that was a very different case to that of a company whose works were thousands of miles away.

The CHAIRMAN, in answer to a shareholder, said the directors were most anxious to find themselves in a position to reduce the price of gas to the municipality; but, if they were to get any dividend for their constituents, it must, for a time at least, be by the maintenance of the present price.

Mr. R. CLARKE asked whether the directors would promise for the future to publish half-yearly accounts.

Mr. S. CLARKE said it was promised two years ago.

Mr. W. LYSLEY said he believed it was so, but the directors had found it impossible to carry out the arrangement.

The CHAIRMAN said it would involve a considerable amount of trouble and expense, as extra hands must be employed for the purpose. The company had a large stock of coals on hand—never less than 3000 tons—which must be measured in some way or other. They had also a stock of fittings, amounting to many thousands of pounds, which must be valued. But the directors authorized him to say that, after the wish that had been expressed by the shareholders, they would provide half-yearly reports and accounts, which should be circulated before the meetings. With reference to Mr. Ransford's inquiry, the necessity for the call upon the £4 shares was this: the directors were indebted nearly the whole of the amount for coal and other things. The fact was, the money was required as working capital, and he mentioned that at the last meeting as the reason for calling up the £10,000. As to the qualification of the directors, the board could insist upon no other than that required by the Articles of Association—viz., the possession of £500 stock in the company; but it would be optional with the shareholders at their meeting to reject a candidate who only held that interest in the concern. The defalcation of their collector was not attributable to the want of more frequent stock-taking.

Mr. LYSLEY said it arose in the course of the collection. The directors suspected something wrong, and suspended the collector. They also sent some one to take his place, who discovered the truth of the matter.

The CHAIRMAN said he hoped Mr. Stephenson Clarke would not press his suggestion for a committee of investigation, for though personally the directors could have no objection to it, inasmuch as they had nothing to conceal, it would not be for the interests of the company to make such an appointment.

Mr. LYSLEY asked whether Mr. Clarke had any charge to make against the directors.

Mr. STEPHENSON CLARKE said he had none—he only complained that they paid so bad a dividend.

Mr. LYSLEY said that was a matter which unfortunately the directors could not help. The high price of coal and other things had told against greater profits.

Mr. STEPHENSON CLARKE remarked that the residual products bore a high relative value. If there was an objection to a committee of investigation, he would suggest that two or three shareholders should be invited to go over the matter in a friendly way with the directors.

The CHAIRMAN said so far as the directors were concerned, they were perfectly willing that the suggestion should be adopted. He would ask Mr. Stephenson, the chairman of the Singapore Company, which had been at work some years longer than the Bombay Company, whether, in his opinion, the progress made by the latter was so unsatisfactory as Mr. Clarke seemed to think.

Mr. STEPHENSON said that, taking the figures he had before him, and on that basis comparing the two undertakings, he must unhesitatingly express his opinion that the Bombay Company ought to pay a higher dividend than the Singapore. The cost of coal to the Bombay Company was £2 18s. per ton, but then they got £2 11s. 2d. per ton for their coke; whereas the Singapore Company, who obtained their coal at £2 5s., realized only 10s. per ton for coke. The Bombay Company obtained 14s. per 1000 cubic feet for the gas supplied both to public and private consumers, whereas the Singapore Company obtained only 13s. 6d. per 1000 from private consumers and 10s. per 1000 for the public lights. The Singapore Company had a rental of only £8000 a year, whereas the Bombay Company had a rental of £30,000. Looking at all these figures, therefore, he unhesitatingly said that, unless there were other circumstances with which he was unacquainted, the Bombay Company ought to pay the proprietors better than the Singapore. But the truth was that all the Eastern companies were paying a higher dividend than the Bombay. The Hong Kong Company paid 6 per cent., and the Oriental 10 per cent., whereas this company, with its magnificent works and large rental, paid only 4 per cent. In his opinion the progress of the company ought to be more rapid.

Mr. COLLIER asked what the capital of the Hong Kong Company was.

Mr. STEPHENSON: About £50,000.

Mr. COLLIER: Ours is £250,000.

Mr. STEPHENSON said the Singapore Company had a capital of about six times their rental; the Bombay Company's capital was about seven times its rental, but the latter got a higher price for gas. Labour at Singapore was low in cost, but the company were obliged to employ a larger quantity than at Bombay; where the latter company employed three stokers, the former employed nine.

Major-General RIGBY said some of the gentlemen who had made remarks were not aware of the circumstances existing at Bombay. Mr. Stephenson Clarke, too, appeared to have quite lost sight of the fact that last year the company was able to pay the dividend of 4½ per cent., not from the profits of gas alone, but from the sale of coal. This year the dividend arose entirely from the profits of the legitimate business of the company. He (Major-General Rigby) had known Bombay for 32 years, and it was not long since he left the place; he was, therefore, able to confirm the chairman's statement that the greater portion of the revenue of this company was derivable from the municipality, and he had no hesitation in characterizing that body as the meanest of any municipality in the world. If possible, they were worse than a metropolitan vestry. No company had ever been worse treated, both by the Government and the municipality, than had this company. The shareholders should know that the financial condition of Bombay was greatly improving, and that the number of pri-

vate lights supplied by this company was increasing. Remembering the adverse circumstances with which the directors had had to contend, it seemed to him that the progress of the company, though not so satisfactory as he could wish, was as satisfactory as could be expected. There was one matter he wished to point out to the board. He saw it was determined that the whole of the garrison of Bombay should be settled on the island of Colaba. It was a question, when he was at Bombay, whether that place should be lighted with gas, but should an opportunity present itself for introducing gas there, he hoped the directors would facilitate such an arrangement, because the consumption would yield an important addition to the revenue of the company.

The CHAIRMAN said he had no doubt the consumption would be very considerable, but to supply Colaba it would be necessary to lay down two miles or more of new mains. The company were called in some time ago to furnish estimates to the Government of the cost of supplying gas to the barracks. They offered at a minimum price, and some correspondence ensued, but as yet it had not eventuated in an order. The board would keep the matter fully in view, and if they could possibly induce the Government to accept their proposal they would be glad to facilitate the arrangement in every way. He believed there had been an extension of mains some part of the way for the purpose of lighting a church.

Major-General RIGBY said that was very near.

The CHAIRMAN said he might have stated, in passing, that the company were very busy in Bombay at the present moment, having a great deal of extra work to do. Mr. Sassoon had ordered an illumination of his house, the cost of which for one night only would amount to £300. There was also an illumination required for the Governor, who had given large orders for the extension of the lighting at the Government House and grounds.

Mr. RANSFORD asked whether the whole of the £30,000 worth of fittings in stock were paid for.

The CHAIRMAN said they were paid for long since. Referring again to the remarks of Mr. Stephenson Clarke, he thought the appointment of a committee of investigation would imply a censure upon the board which he believed was not deserved or intended. The board was perfectly ready to meet any shareholder, or any two or three shareholders, who might come to them to discuss the affairs of the company.

Mr. STEPHENSON CLARKE said his notion was that a friendly investigation in the way he proposed would lead to a better state of feeling between the great body of the shareholders and the directors.

Mr. LYSLEY said he should prefer having a committee of investigation to a "friendly" inquiry, but he thought any suggestion of the sort should be deferred until the next general meeting. The dividend now declared was upon an estimated profit, and not from a balance of accounts, so that the responsibility of it rested with the directors. The reduction in the cost of coals at Bombay would, he believed, make a difference of 1 per cent. in the dividend; and the diminution in the price of labour would probably add another ½ per cent. The private consumption of gas was increasing steadily, and was likely in a still greater ratio to increase. By-and-by he hoped the company would be able to sell gas at a lower price at even a larger profit than at present. He looked upon the company as having come to the turning-point in its history; and, as he had never known a case in which a committee of investigation had ever resulted in improving the condition of an undertaking, he should, though perfectly willing, with his co-directors, to furnish every information to the shareholders, oppose such a proposition at the present moment. There was no information to be obtained which they were not already in possession of; and therefore, if Mr. Clarke made a motion on the subject, he should move as an amendment that the question be deferred until the next general meeting. He moved an amendment accordingly.

Mr. STOKES, believing that the directors had had a very trying time, and that they were now pulling through, and would be able to show a better state of things at the next meeting, recommended that Mr. Clarke's proposal should be deferred.

Mr. STEPHENSON CLARKE suggested that the directors should invite Mr. H. P. Stephenson to come upon the board. With the exception of Mr. Hawksley, he believed no man in the room better understood the management of gas-works.

Mr. STOKES thought the suggestion a good one, and hoped the directors would avail themselves of Mr. Stephenson's knowledge and experience.

Mr. STEPHENSON CLARKE moved that Mr. Stephenson be appointed a director.

The CHAIRMAN said it was not competent to the meeting to elect a director; they could only make a recommendation to the board to elect one.

Mr. STEPHENSON said he did not come to the meeting with the idea of being pitchforked into the direction; but, if it were the wish of the shareholders, he might upon consideration consent to join the board. At present he was not in a position to do so, and he thought it would be better to leave the matter to the next general meeting.

The CHAIRMAN, on behalf of the directors, said they would with pleasure invite Mr. Stephenson to join the board.

Mr. Lysley's amendment was then put to the meeting and declared carried.

On the motion of Mr. STOKES, a vote of thanks was given to the chairman and directors.

The CHAIRMAN appropriately acknowledged the vote, and the proceedings terminated.

INSTRUCTIONS FOR THE GAS EXAMINERS.

Office of the Gas Referees,
23, *New Street, Spring Gardens, Dec.* 19, 1868.

In compliance with the 33rd, 37th, and 40th clauses of the City of London Gas Act, 1868, and the 109th clause of the Gaslight and Coke Company's Act, 1868, which require "that the gas referees shall from time to time prescribe and certify what testing-places and what apparatus therein shall be provided," and also "the mode to be adopted for testing and recording the illuminating power and the purity of gas" supplied to the City of London, and also to the district beyond the limits of the City of London in so far as that is supplied by the Gaslight and Coke Company, the gas referees enjoin, until further order, as follows:—

STATIONS FOR TESTING.

The testing-places shall be as follows:—For the City of London Gaslight and Coke Company, at 106, Cannon Street; for the Great Central Gas Consumers Company, at 7, Friendly Place, Bancroft Road, Mile End; and for the Gaslight and Coke Company, at 17, Arundel Street, Haymarket; 98, Leadenhall Street; and 43, Gray's Inn Lane.

MODE AND TIMES OF TESTING FOR ILLUMINATING POWER.

Until the end of March next the testings for illuminating power hall be four in number, and shall commence at the following hours:—

For Common Gas.		*For Cannel Gas.*	
1st testing . .	at 5 P.M.	1st testing . .	at 5.30 P.M.
2nd " . .	" 6 "	2nd " . .	" 6.30 "
3rd " . .	" 7 "	3rd " . .	" 7.30 "
4th " . .	" 8 "	4th " . .	" 8.30 "

The instrument to be used shall, until further order, be the particular kind of improved Bunsen photometer now in use by the respective companies, which instruments have been inspected by the referees and found adequate for the purpose in the present state of photometrical science. The burners shall correspond with those prescribed for the testing of common and cannel gas in the Metropolis Gas Act of 1860. The candles shall be sperm, and two candles shall be used together.

Each testing shall include ten observations of the photometer, made at intervals of one minute. The gas is to be regulated so as to give such a continuous pressure during the observations as will cause it to be consumed as nearly as possible at the rate of 5 cubic feet per hour. If the consumption be above or below this rate, the gas examiner shall make (and record in a book to be kept for the purpose) the calculations requisite to neutralize the effects of this difference. But in no case shall any observations be recorded during which the consumption of gas is found to have differed from the above-mentioned quantity by more than one-tenth of a foot.

The standard rate of consumption for the candles shall be 120 grains each per hour. After making the ten observations of the photometer required for each testing, the gas examiner shall weigh the candles, and if the rate of combustion shall have been more or less per candle than 120 grains per hour, he shall make (and record in a book to be kept for the purpose) the calculations requisite to neutralize the effects of this difference. But in no case shall any observations be recorded during which the consumption of sperm is found to have differed from the above-mentioned quantity by more than 5 grains per candle.

The gas examiner shall also carefully observe the temperature of the air, as shown by the thermometers (which are to be placed as near as possible to the meters), and also the height of the barometer. He shall then correct the bulk of the gas operated upon during the experiment in the following manner (the standard of comparison being, for the barometer, 30 inches, and for the thermometer, 60°):—Suppose the meter shows that the rate of consumption of the gas has been 5 feet per hour, while the thermometer stands at 56°, and the barometer at 30·5 inches: multiply the quantity of gas registered by the *tabular number* corresponding to the indications of the barometer and thermometer (as given in the table, Appendix B); point off three figures to the right hand, and you will then have the corrected volume of the gas. Thus:—

Volume of gas registered	5 feet
Tabular number for barometer and thermometer . .	1025

Then 1025 × 5 = 5·125, the corrected volume.

The results of the daily testings of the illuminating power, so corrected, shall be recorded in the form given in Appendix A.

The average of each set of ten observations is to be taken as representing the illuminating power for that testing, and the average of the four testings is to be taken as representing the illuminating power of the gas for the day.

TESTINGS FOR PURITY.

I. *Sulphuretted Hydrogen.*—All the gas that is consumed in testing for illuminating power shall be passed through an apparatus (a specimen of which may be seen at this office), in which slips of bibulous paper, prepared with a solution of acetate of lead, are to be suspended in a damp state, and exposed to the action of the gas during the whole time that the testings for illuminating power are being made. If, at the close of the testings for illuminating power, any discoloration of the test-paper is found to have taken place, this is to be held conclusive as to the presence of sulphuretted hydrogen in the gas.

When the test is concluded, one of the test-slips shall be fixed in a guard-book, to be kept at the testing-station; the remaining slips shall be forwarded with the other reports, as shown in Appendix A.

II. *Sulphur Compounds* (*other than Sulphuretted Hydrogen*).—This test is to be a continuous one for nearly 24 hours. The apparatus to be used, until further order, shall be that known as Dr. Letheby's "sulphur test" (a specimen of which may be seen at this office); and the analysis shall be conducted in the mode specified in Appendix C.

The testings shall be made in a room where no gas is burnt other than that which is being tested for sulphur and ammonia.

In order to ensure greater accuracy, this testing shall be made by two separate sets of apparatus simultaneously; and the average of the results so obtained shall be held to show the amount of sulphur contained in the gas.

III. *Ammonia.*—This test is to be continuous, like that for sulphur.

Gas, at the rate of not less than ·75 cubic foot per hour, shall be passed through an apparatus (a specimen of which may be seen at this office); and the testing shall be made by alkalimetry, according to the method described in Appendix D.

NOTE.—In dealing with the volume of gas operated upon in the testings for purity, the same corrections must be attended to as are specified under the head of illuminating power, with this difference, that the readings of the barometer and thermometer are to be taken for the previous day, as well as for the day in which the calculations are made, and the mean of the two is to be taken. Thus:—

	Barometer.	*Thermometer.*
December 13	29·5	55
" 14	30·3	60
	2)59·8	2)115
Readings for December 14 .	29·9	57·5

BAROMETER AND THERMOMETER.

Readings of the barometer and thermometer shall be made daily at seven P.M., and recorded as shown in form, Appendix A.

METERS.

The meters used for measuring the gas consumed in making the various testings must, in the first instance, be stamped by an official gas-meter tester; and subsequently, at periods of not less than seven days, each meter shall be proved by means of an apparatus, a sample of which may be seen at this office. It consists of a vessel having a capacity of one cubic foot. The pipe at the top is to be connected with the inlet of the meter to be proved; water is then to be slowly run into the apparatus from the bottom until the water comes up to the mark in the glass tube at the top; the air, as it is thus displaced, is to be passed through the meter, which, if correct, should register one cubic foot. Should the meter show a variation of half a per cent., water must be added or subtracted until the meter is correct.

Every testing-place shall have the above-mentioned apparatus, so that the gas examiner may employ it whenever he thinks necessary. The meters will also be proved from time to time by the referees at their periodical inspections of the testing-stations and apparatus.

No meter other than a wet one shall be used in testing gas under this Act.

PENALTIES.

The gas shall be considered to be impure, rendering the company which issues it liable to the penalties described in the Act, when it contains more than 5 grains of ammonia in each 100 feet, or when it shows the least trace of sulphuretted hydrogen. The quantity of sulphur compounds other than sulphuretted hydrogen shall, until further order, simply be recorded.

The illuminating power of the gas is ordered in the Act to be, for the present, not less than 14 candles for common gas, and 20 candles for cannel gas.

APPARATUS.

The books and printed forms required to be kept by the gas examiners may be procured at this office.

In order to ensure accuracy and uniformity in the results of the testings, the burners, chemical apparatus, candles, test-papers, test-solutions, &c., used at the several testing-stations, shall be such as have been examined and certified by the gas referees, and may be procured at this office.

JOHN SAMPSON PEIRCE.
FREDERICK JOHN EVANS.
ROBERT HOGARTH PATTERSON.

APPENDIX A.

Form for Recording the Daily Testings of the Gas.

CITY OF LONDON GAS COMPANY.

106, CANNON STREET, *Nov.* 9, 1868.

Common Gas.

Observations.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Average Illuminating Power.	Grains Consumed by each Candle p. Hour.	Illuminating Power Corrected to Standard of 120 Grains.	Consumption of Gas Corrected to Standard of 30 in. and 60°.	Result of all Corrections of Illuminating Power in Candles.
Hour	Illuminating Power for each Candle.														
5P.M.	14·	14·1	14·3	14·5	14·0	13·9	13·8	14·0	14·1	14·2	14·09	122	14·32	5·125	13·97
6 ,,	13·9	14·0	14·1	14·3	14·5	14·2	13·9	14·1	14·2	14·3	14·15	121	14·26	5·125	13·91
7 ,,	14·1	14·1	14·1	14·2	14·4	13·9	13·8	14·0	14·2	14·4	14·12	120	14·12	5·125	13·77
8 ,,	14·2	14·0	14·0	14·3	14·4	14·5	13·9	13·8	14·1	14·4	14·16	121	14·27	5·125	13·92
Aver.	14·	14·	14·1	14·3	14·3	14·1	13·8	13·9	14·1	14·3	14·13	121	14·24	5·125	13·91

Cannel Gas.

P.M.															
5.30	20·	19·8	20·5	21·0	20·8	21·0	20·4	20·3	20·6	20·8	20·52	121	20·69	5·125	20·13
6.30	21·	21·0	20·8	20·7	20·5	20·6	20·7	20·8	20·9	20·5	20·75	121	20·92	5·125	20·40
7.30	20·	20·6	20·5	20·9	21·0	20·8	20·7	20·5	20·4	20·8	20·62	122	20·96	5·125	20·41
8.30	21·	21·0	20·8	20·8	21·0	21·0	20·9	20·7	20·6	20·8	20·86	120	20·86	5·125	20·35
Aver.	20·5	20·6	20·6	20·8	20·8	20·8	20·7	20·6	20·6	20·7	20·67	121	20·85	5·125	20·33

RESULTS OF ALL THE TESTINGS.

	Common Gas.	*Cannel Gas.*
Illuminating power	13·91 candles.	20·33 candles.
Sulphuretted hydrogen	None.	None.
Ammonia, per 100 feet	4·5 grains.	4·7 grains.
Sulphur, per 100 feet	25· grains.	22·1 grains.

Place for Test-Paper used in Testing for Sulphuretted Hydrogen.

Barometer, at 7 P.M. . . 30° 5'
Thermometer, do. . . . 56°
Weather . "Fine" or "Foggy," &c.

(Signed)

APPENDIX B.

This consists of a table to facilitate the correction of the volume of gas at different temperatures and under different atmospheric pressures. The calculations from which this table has been drawn up are based on the experiments of Dulong, Regnault, and Magnus, at temperatures varying from 40° to 82° Fahr., and with barometric pressures of from 28 in. to 31 in.

APPENDIX C.

TEST FOR SULPHUR COMPOUNDS OTHER THAN SULPHURETTED HYDROGEN.

The gas for this test shall be burnt at the rate of not less than ·75 cubic foot per hour.

At the end of each period of nearly 24 hours both sets of the apparatus are to be stopped simultaneously; the condensers are to be emptied; the condensers, eduction-tube, and chimney are to be well washed with distilled water, and the apparatus thereafter put to work again.

For each set of apparatus, the mode of testing shall be as follows:—

The liquid formed in the condenser, and the water used in washing the apparatus, shall be put into the same vessel.

One-half of the liquid so obtained is to be set aside and preserved for a week, properly labelled, in case it should be desirable to verify the correctness of the analysis by repeating the test.

The other half of the liquid is to be boiled for ten minutes, and then treated with muriatic acid, sufficient in quantity to leave an excess of acid in the solution. An excess of a solution of chloride of barium is next to be added, and the solution again boiled for half an hour. Thereafter the liquid is to be allowed to cool, when the sulphate of baryta formed will settle at the bottom of the vessel; the liquid is then to be poured on a filter-paper, and the sulphate of baryta left thereon is to be well washed with hot distilled water, so as to perfectly wash away any excess of muriate of ammonia or baryta. (In order to ascertain whether the ammonia or baryta has been wholly removed, a small quantity of the liquid should be placed in a test-tube, adding a drop of a solution of nitrate of silver; should the solution, instead of remaining perfectly clear, become cloudy, the washing must be repeated until no cloudiness is left.) The filter-paper, with its contents, is then to be made red hot in a platinum crucible and burnt to a white ash, and the resulting sulphate of baryta is to be carefully weighed.

For this, as well as the other testings, the chemical solutions will be supplied from the laboratory of the referees, in order to ensure their being of the proper and uniform strength.

In regard to both sets of apparatus, the gas examiners shall be bound to record (1), the quantity of gas operated upon; (2), the amount of liquid obtained, in fluid ounces; (3), the amount of liquid tested, in fluid ounces; (4), the quantity of sulphate of baryta obtained; and (5), the amount of sulphur represented by this sulphate. All the calculations shall be worked out and recorded in a book to be kept for that purpose.

The calculations for working out the quantity of sulphur in the resultant sulphate of baryta are to be entered in a book after the following manner (supposing that in No. 1, 18 feet of gas has been burnt, yielding 27 grains of sulphate of baryta; and in No. 2, 20 feet of gas, yielding 28 grains of the sulphate):—

Calculation for Apparatus No. 1.

As 18 feet is to 27 grains, so is 100 feet:
100

18)2700(150 grs. per 100 ft.
18

90
90

0

Then, as 117 parts of Sulphate of Baryta contain 16 parts of Sulphur—
117 : 16 :: 150
16

900
150

117)2400(20·51
234

600
585

15

Calculation for Apparatus No. 2.

As 20 feet is to 28 grains, so is 100 feet:
100

20)2800

140 grains per 100 feet.

Then, as 117 parts of Sulphate of Baryta contain 16 parts of Sulphur—
117 : 16 :: 140
16

840
140

117)2240(19·14
117

1070
1053

170
117

530
468

62

Details of the Test.

	Apparatus No. 1.	Apparatus No. 2.
Gas consumed	18 feet.	20 feet.
Liquid obtained	13 oz.	14·5 oz.
Washings added	7 oz.	5·5 oz.
Liquid tested	10 oz.	10 oz.
Sulphate of baryta obtained	27 grains.	28 grains.
Sulphur in 100 feet of gas	20·51 grains.	19·14 grains.

APPENDIX D.

TEST FOR AMMONIA.

In this test the gas must be passed through the testing apparatus previous to its entering the meter to be measured, so as to prevent the possibility of any ammonia being taken out by the water contained in the meter.

The gas is to be passed through the apparatus at the rate of not less than ·75 cubic foot per hour.

The apparatus consists of two glass cylinders, in which are placed pieces of broken glass, or glass beads. The cylinders are connected together, and the gas to be operated upon is made to pass through both. A set of alkalimeter tubes, properly graduated, is also required.

Two test-solutions are to be used—one consisting of dilute sulphuric acid of such strength that 10 measures will neutralize 1 grain of ammonia; the other, of a weak solution of ammonia, 100 measures of which contain 1 grain of ammonia.

The mode of testing is as follows:—Take the prescribed quantity of sulphuric acid solution (always in excess of any quantity of ammonia likely to be found in the gas), and pour one-half into each of the glass cylinders, so as to well wet the whole surface, as also the glass beads, or broken glass. Having fixed the cylinders (in the manner shown at this office), allow all the gas to pass through them. Any ammonia that may exist in the gas will then be arrested by the sulphuric acid, and a certain quantity of the acid (varying with the quantity of ammonia in the gas) will be neutralized. The gas, after leaving this apparatus, is then to be measured by passing it through the meters used for the sulphur-test.

At the end of the period allotted to the sulphur-test—say 23 hours—the glass cylinders and their contents are to be well washed with distilled water, and the washings collected in a glass vessel. One-half of this liquid is to be set aside, and perserved for a week, duly labelled. One-fifth of the other portion is then to be taken in a separate glass vessel, and a quantity of solution of hematine added sufficient to cause the whole liquid to assume a brownish colour. Then fill the alkalimeter tube to the required height with the test ammonia solution, and gradually drop the solution into the measured quantity of the washings collected, stirring continually; and as soon as the colour changes to a pink tint, read off the quantity of liquid dropped from the alkalimeter tube. This quantity will represent the amount of free sulphuric acid which had been left unacted upon in the cylinders; which quantity, deducted from the original quantity put into the cylinders, will represent the amount of sulphuric acid acted upon by the ammonia in the gas; and this, by simple calculation, is convertible into grains of ammonia existing in the gas.

The apparatus, with all necessary instructions for its use, can be seen at the office of the referees, where certified test-solutions and apparatus may be obtained.

BRITISH ASSOCIATION OF GAS MANAGERS.

TESTIMONIAL TO MR. JAMES BLACKBURN.

A Meeting of this Association was held in the Board-Room of the Oriental Gas Company, Leadenhall Street, London, on Tuesday, the 22nd ult., for the purpose of affording the members an opportunity to bid farewell to their esteemed honorary secretary, Mr. James Blackburn, on his departure from England to fill the office of engineer-in-chief of the gas-works at Calcutta, and to present him with a testimonial of respect and of their appreciation of his zealous services on behalf of the association.

The PRESIDENT (Mr. Goddard), on taking the chair, said the meeting had been convened to enable the members of the association to fulfil a very gratifying and pleasing duty—to congratulate their esteemed friend, the honorary secretary, on his appointment to the important office of engineer-in-chief to the Oriental Gas Company, and also to testify to him their high appreciation of his character and of the ability with which he had discharged the duties devolving upon him in connexion with the association. Very much of the success of the association was owing to the energy and ability displayed by Mr. Blackburn, and when it was ascertained that that gentleman was about to leave England, he (the president) took upon himself to convene a meeting of the members, with the design of taking counsel with each other as to the way in which it would be desirable to express their feelings of respect to him. The proceedings at that meeting were communicated to all the members throughout the country, and a most cordial response was made to the application for subscriptions towards the testimonial then resolved upon, while the correspondence to which it led contained the most gratifying proofs of the general esteem entertained towards Mr. Blackburn, and the hearty good wishes of the members for his success in the new field of labour upon which he was entering. For his own part, he (the president) would only say that he was most happy to be the medium through whom the testimonial was presented, and to have the privilege of conveying to Mr. Blackburn the assurance that the association desired for him all the happiness which he could desire for himself; that his health might be preserved; and that a long continuance of prosperity might attend him in the important office the duties of which he was now called to discharge.

The president then handed to Mr. Blackburn a purse of one hundred sovereigns, and a binocular microscope fitted up with every modern improvement. On the top of the case containing the microscope was engraved the following inscription:—"Presented to James Blackburn, Esq., with a purse of gold, by the members of the British Association of Gas Managers, on the occasion of his resigning the office of honorary secretary of the association to enter upon the duties of engineer-in-chief to the Oriental Gas Company, Calcutta, December 18, 1868." A handsomely bound copy of Bagster's Comprehensive Family Bible was also handed to Mr. Blackburn by the president, who, with many appropriate observations as to the paramount importance of the truths contained therein, requested Mrs. Blackburn's acceptance of the same. The Bible bore this inscription:—"Presented to Mrs. James Blackburn, as a token of respect, by the members of the British Association of Gas Managers. 'If we walk in the light, as He is in the light, we have fellowship one with another, and the blood of Jesus Christ His Son cleanseth us from all sin.'"

Mr. BLACKBURN, on rising to return thanks, was very heartily cheered. He said: Mr. President and gentlemen, I feel that it is quite impossible for me sufficiently to express my thanks for your great kindness, and for these noble and substantial proofs of your interest in my welfare. I desire especially to thank our much-esteemed president for the very complimentary remarks which he has just made use of in presenting these beautiful and magnificent gifts, and can assure him that I appreciate to the fullest extent the kind and generous feeling which he has at all times displayed towards me. I accept those truly noble gifts with feelings of the most intense gratification, as an earnest of your approbation of my labours in connexion with this association, and also of your interest in my future welfare. It has occurred to me to-day as a remarkable coincidence, that exactly five years ago (or within a few days thereof) the first preliminary meeting to promote the formation of this association was held at the Royal Hotel, Manchester, when I had the honour of being entrusted with the duties of secretary. Since that time it has been a great pleasure and delight to me to witness, year by year, the prosperity of the association, and to note not only how rapidly the number of its members has increased, but how much it is gaining in influence during each year of its existence. The president, in the fulness of his heart, has, I fear, given me more credit for assisting in promoting this prosperity than is justly my due. I do not deny that I have occasionally found it necessary to work hard and use considerable mental and physical effort to keep the business of the association going on smoothly and comfortably, but this labour has at all times been to me a source of real pleasure, and I have, consequently, felt a pride in fulfilling the duties of the office of secretary to the best of my ability. On behalf of Mrs. Blackburn, I have also to thank you for the elegant and appropriate gift of a Bible, and can assure you that we shall both especially value this gift as an evidence of a higher proof of your earnest and sincere wishes for our welfare than could possibly otherwise be shown. I assure you that the sight of these noble and beautiful gifts will at all times afford me real pleasure, reminding me, as they will, of the exceedingly pleasant intercourse which has at all times existed between myself and the members of the British Association of Gas Managers. In conclusion, gentlemen, I would fain repeat again and again my thanks for your great kindness, and beg to assure you of my earnest interest in anything which will assist in promoting the prosperity of this association.

Mr. ESSON (vice-president) then moved a vote of thanks to Mr. George Livesey for his services in connexion with the arrangements for the testimonial, and congratulated him on the success of his labours.

Mr. ANDERSON seconded the motion, which was unanimously agreed to.

Mr. LIVESEY, in acknowledging the vote, disclaimed much of the praise bestowed upon him, which he said strictly belonged to the president, with whom originated the proposal for a testimonial, and who had most of the work to do in connexion with it. So far as his (Mr. Livesey's) services were concerned, they had been cheerfully rendered, and he was glad that they had been acceptable. In the success of the testimonial he especially rejoiced, because it was so completely the spontaneous expression of the feelings of the members, and he was sure that this fact would greatly enhance its value to Mr. Blackburn.

The PRESIDENT said, as the members of the association were then assembled in larger numbers than they probably would be again for some months, he thought it would be an appropriate time for the selection of a gentleman to discharge the duties of the secretaryship until the annual meeting.

Mr. ESSON said, as far as he knew, there was an almost unanimous feeling in favour of the appointment of a gentleman then present. There had been some difficulties in the way of his acceptance of the office, but these had been all removed, and if it were the wish of the meeting to make a provision *pro tem.* they could now do so without delay. The gentleman he alluded to was Mr. W. H. Bennett, who was willing to give the necessary attention to the duties. He moved the appointment of Mr. Bennett, and expressed a hope that he would be as successful as his predecessor in promoting the interests of the association.

Mr. FRASER said it gave him great pleasure to second the proposition. He had known Mr. Bennett for a number of years, and had a very great respect for him. He believed he was every way well qualified to undertake the duties which had hitherto been performed by Mr. Blackburn.

The motion was put, and carried unanimously.

Mr. BENNETT said he most sincerely and heartily thanked the members for the honour they had conferred upon him. Following, as he should have to do, in the wake of a gentleman who had filled the office with so much credit to himself and satisfaction to the association, he should have felt much diffidence in accepting the appointment, had not the ventilation of the question of who should be Mr. Blackburn's successor elicited so many expressions of kindly feeling and respect towards himself, that he felt sure he should have the sympathy and support of every member of the association in the discharge of his duties. With this conviction he had no hesitation in responding to the call of the meeting, and he trusted that his exertions on behalf of the association would be successful.

Mr. BLACKBURN, in complimentary terms, proposed a vote of thanks to the president, to whom he expressed his personal obligations for the valuable assistance he had frequently rendered him.

Mr. METHVEN seconded the resolution, which was very cordially adopted.

The PRESIDENT acknowledged the vote, and said he had from the commencement of the association felt a very lively interest in its prosperity. He believed it was an institution which had done much, and would do more, for the profession with which they were all connected, and he was glad to think that, though they had lost the services of Mr. Blackburn, to whose zeal and ability they were so much indebted, they had been able to appoint a gentleman as his successor who was well known amongst them, and who, he believed, would feel a hearty desire to forward the objects they had in view. Before separating he thought the association ought to recognize the kindness of the directors of the Oriental Gas Company, and of their secretary, Mr. Hersee, in allowing the meeting to be held in their offices.

Mr. FRASER seconded the resolution, which was put, and carried unanimously.

Mr. HERSEE acknowledged the vote, and said that the directors of the company, as well as himself, heartily sympathized in the object of the meeting, and rejoiced that the testimonial had been raised in the manner it had been.

The proceedings then terminated.

DR. FRANKLAND'S ANALYSIS OF THE METROPOLITAN WATERS IN DECEMBER, 1868.—"Royal College of Chemistry, Dec. 24, 1868.—Sir,—I have the honour to submit to you in the following table the results of the chemical examination of the waters supplied to the metropolis during the month of December. For the purpose of comparison I append also the results yielded by the waters supplied to the towns of Edinburgh, Glasgow, Newcastle, Manchester, Preston, and Lancaster, when submitted to the same analytical processes. The water of the Lambeth Company was turbid and milky, that of the Southwark Company slightly turbid; the samples drawn from the mains of the New River, East London, and Kent Companies contained traces of suspended matter, whilst the waters supplied by the Chelsea, West Middlesex, and Grand Junction Companies were perfectly clear and transparent.

Companies.	Date and Place of Collection.	Temperature in Centigrade Degrees.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.	Ammonia.	Nitrogen, as Nitrates and Nitrites.	Total combined Nitrogen.	Previous Sewage Contamination (Estimated).	Chlorine.	Total Hardness.
Thames.											
Chelsea.....	Dec. 7—Cab Rank, Horse Guards ..	9·4	33·04	·240	·034	·002	·375	·411	3451	1·986	13·21
West Middlesex	Dec. 7—Cab Rank, Portland Road..	10·5	32·54	·239	·044	·001	·282	·327	2513	1·936	13·68
Southwark & Vauxhall..	Dec. 7—Cb. Rk. St. George's Ch., Bo.	10·8	32·02	·269	·036	·001	·326	·363	2945	1·986	13·21
Grand Junction.....	Dec. 7—Cab Rank, Woodstock St. ..	10·0	33·58	·257	·045	·001	·317	·363	2863	1·986	13·68
Lambeth....	Dec. 7—Cab Rank, Lambeth Road..	9·7	31·82	·257	·034	·001	·372	·407	3404	2·283	12·12
Other Sources											
New River...	Dec. 7—Cab Rank, Tottenham Ct. Rd.	10·3	31·88	·092	·016	·001	·334	·351	3025	1·688	25·4
East London.	Dec. 8 — Slater's, Old Ford Road .	11·1	32·18	·096	·029	·002	·214	·245	1878	1·986	24·8
Kent.....	Dec. 8 —Deptford Bdge. Police Stat.	11·7	42·36	·042	·012	·000	·402	·414	3700	2·283	30·3
Edinburgh Waters.											
Crawley Burn	Sept., 1868.		11·28	·187	·031	·001	·000	·032	0	1·042	6·1
Coniston Wr.			22·58	·085	·017	·001	·744	·762	7124	1·886	10·4
Swanston Wr.			12·70	·378	·059	·001	·000	·060	0	1·390	6·2
Colmton Wr.			14·10	·203	·042	·000	·000	·042	0	0·894	9 2
Newcastle...	September		23·40	·237	·062	·000	·000	·062	0	1·588	13·9
Loch Katrine	July, Glasgow....		3·0	·161	·011	·001	·000	·012	0	·905	0·3
Manchester..	June—Manchester		6·2	·183	·009	·006	·025	·039	0	1·117	3·7
Preston	August—Preston .		12·44	·236	·031	·006	·000	·036	0	1·590	8·9
Lancaster ...	Nov.—Lancaster..		4·58	·129	·022	·001	·000	·023	0	·990	·1
Column 1	2	3	4	5	6	7	8	9	10	11	12

The numbers in columns 4, 5, 6, 7, 8, 9, 10, 11, and 12 all relate to 100,000 parts of the waters. The table is to be read thus: The Chelsea Company's water collected on Dec. 7, at the Horse Guards cab rank, had a temperature of 9·4° Cent.; 100,000 lbs. of it contained 33·04 lbs. of solid impurity; the organic matter, constituting a portion of this impurity, contained ·240 lb. of carbon and ·034 lb. of nitrogen. This solid impurity also contained ·375 lb. of nitrogen in the form of nitrates and nitrites, besides ·002 lb. of ammonia whilst the total amount of *combined* nitrogen in every form was ·411 lb. The above quantity of water supplied by the Chelsea Company had been, after its descent to the earth as rain, contaminated with sewage or manure matter equivalent to 3451 lbs. of average filtered London sewage. By gradual oxidation, partly in the pores of the soil, partly in the Thames and its tributaries, and partly in the reservoirs, filters, and conduits of the company, this sewage contamination had been converted into innocuous inorganic compounds before its delivery to consumers. Finally, 100,000 lbs. of the Chelsea Company's water contained 23·21 lbs. of carbonate of lime, or an equivalent quantity of other soap-destroying ingredients.—I have, &c., E. FRANKLAND.—The Registrar-General, &c."

Share List of Provincial Gas Companies.

(Directors and Managers of Gas-Works are earnestly requested to enable us to rectify any errors and fill up the omissions in the following List.)

The Companies whose names are printed in italic type are incorporated by Act of Parliament.

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
	£	**ENGLAND.**	£ s d	£ s d	£ s d
		Aberdare			
		Aberdovey			
400	5	Abergele (Lim.)	5 0 0	4 0 0	5 0 0
		Abertillery G. & W.			
		Aberystwith			
800	12½	Abingdon	12 10 0	8 0 0 & Bns.	15 0 0
1050	10	*Accrington G. & W.*	10 0 0		15 0 0
1050	10	Do., new shares.	10 0 0		15 0 0
2100	5	Do., do.	5 0 0		7 10 0
2100	5	Do., do.	1 0 0		1 10 0
2100	2½	Do., do.	0 10 0		0 15 0
1200	5	Airdale (Limited)	5 0 0	10 0 0	8 10 0
300	5	Do., new shares.	0 10 0	8 0 0	
24	75	Alcester	75 0 0	4 0 0	80 0 0
128	10	Aldborough (Lim.)	10 0 0	5 0 0	
269	10	Alderney	10 0 0	5 0 0	11 0 0
2500	10	*Aldershot G. & W.*	6 10 0	4 0 0	
		Aldrington, B., & H.			
300	6	Alfreton	6 0 0	5 0 0	5 10 0
		Alnwick			
		Alston Moor			
250	10	Alton	10 0 0	10 0 0	12 0 0
1600	5	Altrincham	5 0 0	6 0 0	6 0 0
		Ambleside District, £8000			
		Amersham			
		Amlwch (Lim.)			
170	10	Ampthill	10 0 0	4 0 0	9 0 0
350	10	Andover	10 0 0	6 0 0	12 10 0
358	5	Appleby	5 0 0	2 10 0	2 15 0
	5	Arlesey (Limited)			
260	10½	Arundel	10 10 0	7 10 0	
250	10	Ashbourne, Derby.	10 0 0	6 0 0	13 10 0
292	5	Ashburton	5 0 0	5 0 0	
84	30	Ashby-de-la-Zouch	30 0 0	6 0 0	
700	10	Ashford (L.), Kent	10 0 0	6 0 0	11 10 0
1600	30	*Ashton-und-Lyne.*	30 0 0	10 0 0	60 0 0
		Aspatria			
590	5	Atherstone	5 0 0	9 0 0	8 10 0
		Attleborough			
		Axminster			
200	20	Aylesbury	20 0 0	5 0 0	21 0 0
150	10	Aylsham (L.), Nrfk	10 0 0	5 0 0 & Bns.	12 10 0
3093	10	*Bacup (Rossendale Union)* ordinary	10 0 0	10 0 0	16 0 0
600	10	Do., preference	10 0 0	10 0 0	16 0 0
2597	10	Do., new issue	6 0 0	10 0 0	11 0 0
1503	10	Do., 2nd new iss.	8 0 0	7 0 0	10 0 0
300	5	Bakewell	5 0 0	8 0 0	8 0 0
200	10	Baldock	10 0 0	7 10 0	
1000	10	*Banbury* (Limited)	10 0 0	8 10 0	15 15 0
500	10	Do., new shares	7 10 0	7 0 0	10 10 0
2650	10	*Bangor Gas & Wr.*	10 0 0	7 10 0	12 0 0
		Barking			
		Barmouth (L) £1500			
260	10	Barnard Castle	10 0 0	5 10 0	10 15 0
800	5	Barnet	5 0 0	6 0 0	5 10 0
		Barnsley		7 10 0	
109	20	Barnstaple	20 0 0	7 10 0 & Bns.	
109	20	Barnstaple (Lim.)	20 0 0		
		Barrow-in-Furness Gas and Water			
1158	2	Barton-on-Humb.	2 0 0	5 0 0	2 0 0
120	25	Basingstoke	25 0 0	8 0 0	35 0 0
120	10	Do.	10 0 0	8 0 0	14 0 0
		Baslow (Derby)			
2500	16	*Bath*, A shares	16 0 0	8 0 0	} 38 10 0
2500	8	Do., B shares	8 0 0		} united
2500	10	Do., C shares	10 0 0	7 0 0	15 0 0
5000	10	Do., D shares	4 0 0	7 0 0	6 2 0
		Battle £2000		6 0 0	
56	26¾	Bawtry	26 12 6	6 0 0	25 0 0
300	5	Beaconsfield (L.)	5 0 0	4 10 0	5 0 0
		Beaminster			
710	10	*Beccles Gas & Wr.*	10 0 0	2 10 0	
		Bedale, Yorkshire.			
300	30	*Bedford*	25 0 0	4 0 0	20 0 0
390	10	Bedworth	10 0 0	5 0 0	10 0 0
300	3	Belford	3 0 0		1 10 0
400	10	Belper	10 0 0	10 0 0	19 to 20
	10	Bentham (Limited)			
		Berkhampstead			
1086	10	Berwick & Tweedmouth	10 0 0	10 0 0	16 10 0
120	20	Bewdley	16 0 0	5 0 0	16 0 0
200	10	Bicester	10 0 0	5 10 0	11 0 0
		Biddulph, Bradley Gr., & Black Bull			
330	10	Bideford	10 0 0	6 0 0	10 10 0
		Biggleswade			
		Billericay			
6000	5	*Bilston*	5 0 0	8 0 0	6 7 6
200	10	Bingham	10 0 0	4 0 0	
		Birchington (Lim.)			
1200	80	*Birmingham*, A sh.	80 0 0	9 0 0	135 0 0
400	8	Do., B shares	8 0 0	9 0 0	13 10 0
3750	40	Do., new shares	40 0 0	7 10 0	56 10 0
2400	50	*Birmingham and Staffordshire*	50 0 0	10 0 0	99 0 0
2400	25	Do., new shares	25 0 0	10 0 0	49 10 0
7020	20	Do., do.	20 0 0	10 0 0	39 15 0
12500	28	Do., do.	14 0 0	7 10 0	23 0 0
250	16	*Birstall*	12 0 0	12s. 6d. per sh.	12 0 0
		Bishop's Auckland			
180	10	Bishop's Castle	10 0 0	5 0 0	10 0 0
230	10	Bishop's Stortford	10 0 0	5 0 0	10 0 0
		Bishp's Wlthm (L)			
6000	15	*Blackburn*, A sh.	15 0 0	9 0 0	27 0 0
6000	15	Do., B shares	2 0 0	6 15 0	3 10 0
	5	Blaenavn. (L.) £4000			
		Blaenavon G. & W.			
		Blandford			
		Blyth & Cowpen			
		Bodmin			
		Bodmin Consumers			
		Bognor			
100	10	Bolsover	10 0 0		10 0 0
3909	16½	*Bolton*	16 10 0	10 0 0	35 0 0
7466	16½	Do., new shares	12 0 0	6 10 0	
		Boroughbridge (L).			
2000	10	*Boston*	10 0 0	8 10 0	17 10 0
	5	Boston Spa (Lim.)	5 0 0	6 10 0	5 10 0
		Botesdale (L), Suff.			
	5	Bottesfrd. (L) £1500			
200	5	Boughton Blean	5 0 0	5 0 0	5 0 0
193	10	Bourn	10 0 0	5 0 0	
		Bournemth. G. & W.			
160	10	Brackley	10 0 0	6 0 0	10 0 0
		Bracknell (Lim.)			
		Bradford, Wilts			
	25	*Bradford, Yorksh.*	25 0 0	10 0 0	49 0 0
		Braintree			
		Brampton, Cumb.			
		Brandon, Suffolk			
579	10	Brecon (Limited)	10 0 0	10 0 0	18 to 20
129700	Sk.	*Brentford*	All.	7 10 0	
5000	20	Do., A shares	1 0 0		
2500	20	Do., preference	20 0 0	5 0 0	
		Brentwood			
		Bridge, near Cant.			
		Bridge-end, Glam.			
		Bridgenorth (L)			
200	50	*Bridgwater*	50 0 0	7 10 0	70 0 0
520	10	Bridlington (L)	10 0 0	7 10 0	12 10 0
450	10	Bridport	10 0 0	7 10 0	12 0 0
450	10	Do., new shares	7 0 0	5 0 0	8 8 0
6000	5	*Brierly Hill*	5 0 0	4 0 0	5 2 6
		Brigg			
		Brightlingsea (L.)			
3375	20	*Brighton*	20 0 0	7 0 0	17 to 18
675	20	Do., new shares	4 0 0	7 0 0	
5000	20	*Brighton & Hove*	20 0 0	6 10 0	20 10 0
710	20	Do., new shares	20 0 0	6 10 0	20 0 0
		Brimscombe (L.)			
204500	Sk.	*Bristol United*	Stock.	10 0 0	185 to 186
300	5	*Briton-ferry*	5 0 0		
150	8	Brixham	8 0 0	5 0 0	
		Broadstairs			
2000	10	*Bromley*, Kent	10 0 0	8 0 0	14 10 0
3000	10	Do., new shares	3 10 0	8 0 0	5 10 0
		Bromsgrove			
100	10	Bromyard (Lim.)	10 0 0		
		Broughton			
120	10	Bruton	10 0 0	4 0 0	8 to 9
		Brymbo			
		Brynmawr			
100	25	Buckingham	25 0 0	6 0 0	26 0 0
		Buntingford (Lim.)			
	5	Burgess Hill & St. John's (L.) £5000			
500	1	Burley-in-Wharfdale (Limited)	1 0 0	5 0 0	1 1 0
		Burnham, Bucks			
		Burnham (L) Essex			
		Burnham, Somers.			
1600	5	*Bursiem and Tuns.*	5 0 0	10 0 0	9 0 0
2560	5	Do., new shares	5 0 0	7 10 0	7 0 0
440	2½	Burton, Westmoreland (Limited)	2 10 0		
1200	10	*Bury St. Edmnd's*	10 0 0	10 0 0	19 0 0
1800	4	Do., new shares	4 0 0	7 10 0	5 10 0
303	10	Buxton (Limited)	10 0 0	7 10 0	14 0 0
	5	Caerphilly Gas and Water (Limited)			
150	10	Caistor	10 0 0	7 0 0	12 0 0
187	5	Callington	5 0 0		5 0 0
215	10	Calne, Wilts	10 0 0	6 0 0	10 0 0
		Calverley (L) *York.*			
		Camborne			
600	50	*Cambridge*	50 0 0	10 0 0	93 to 95
160	12½	Do., new shares	12 10 0	10 0 0	22 10 0
640	8½	Do., do.	4 0 0	10 0 0	6 0 0
	5	Cambridge Consumers (Limited)	1 10 0		
300	50	Cansfield	50 0 0	10 0 0	92 0 0
240	50	*Canterby. G. & W.*	50 0 0		
240	25	Do., new shares	25 0 0	} £6	
240	12½	Do., do.	12 10 0		
240	6¼	Do., do.	6 5 0		
800	25	*Cardiff*, A shares	25 0 0	10 0 0	48 0 0
1200	25	Do., B shares	25 0 0	8 0 0	36 0 0
400	25	Do.	17 10 0	8 0 0	25 0 0
		Cardigan (Limited)			
160	25	Carmarthen	25 0 0	5 0 0	30 0 0
	10	Carmarthen Consumers (Limited)			
		Carnarvon			
	5	Carnforth (Limitd.) £10,000.			
		Carshalton			
200	6	Castlecary	6 0 0		5 0 0
200	10	Castle Donnington	10 0 0	6 0 0	12 14 0
249	5	Castleford	5 0 0	5 0 0	5 0 0
400	5	Castletwn, I. of M.	5 0 0	6 0 0	5 14 0
409	5	Do.	5 0 0	5 10 0	5 10 0
	5	Caterham (Lim.)			
620	2	Cawood (Limited)	2 0 0	4 0 0	
	¼	Charing (L) £1000.			
		Chatteris			
300	10	Cheadle	10 0 0	6 0 0	12 10 0
200	50	Chelmsford	50 0 0	8 0 0	70 0 0
200	25	Do., new shares	25 0 0	8 0 0	35 0 0
2500	16	*Cheltenham*, A sh.	16 0 0	8 0 0	
2500	8	Do., B shares	8 0 0	7 0 0	
		Do., new shares		7 0 0	
500	10	*Chepstow*, A sh.			
200	10	Do., B shares			
600	5	*Chertsey Consumrs*	5 0 0	6 0 0	6 15 0
600	1½	Do.	1 10 0		
600	2½	Do.	1 10 0		
230	10	Chesham	10 0 0	5 0 0	10 10 0
30000	Sk.	*Chester United*	Stock.	10 0 0	172 to 174
30000	,,	Do., preference	,,	7 0 0	129 to 131
535	10	Do., new shares	10 0 0	7 0 0	14 0 0
250	5	Chester-le-Street	5 0 0	6 0 0	5 0 0
192000	Sk.	*Chesterfield G & W*	100 0 0	5 0 0	178 0 0
400	50	Do., new shares	50 0 0	5 0 0	52 0 0
		Chesterton (L)			
		Chichester			
		Chigwl. & Woodrd. Br. (L.) £10,000.			
	5	Chilham Con. (L.)			
		Chippenham			
329	10	Chipping Nort. L.	10 0 0	5 0 0	
100	10	Chipping Ongar	10 0 0	2 10 0	5 0 0
838	20	Chorley	20 0 0	7 0 0	27 0 0
		Chowbent, Lanc.			
		Christchurch			
	5	Chudleigh (Lim.)			
200	5	ChurchStretton (L)	5 0 0		5 0 0
680	10	Cirencester	10 0 0	5 0 0 & Bns.	11 0 0
		Clay Cross			
		Clayton, Allerton, and Thornton			
257	10	Cleckheaton, A sh.	10 0 0	7 10 0	
257	10	Do., B shares	10 0 0	7 10 0	
257	10	Do., new shares	10 0 0	7 10 0	
		Cleethorpes			
550	10	*Clevedon* (L.)	10 0 0	7 0 0	11 10 0
		Clitheroe			
1139	5	Cockermouth	5 0 0	6 0 0	6 10 0
300	5	Coggeshall	5 0 0		4½ to 5
900	20	*Colchester*	20 0 0	7 0 0	22½ to 23
		Coleford, Glocester			
		Coleshill (L.) £2000			
160	10	Collingham (Lim.)	10 0 0	5 0 0	10 0 0
		Collumpton			
328	5	Colnbrook, Middsx.	5 0 0	5 0 0	5 0 0
150	20	Colne, Lancashire	20 0 0		36 0 0
150	10	Do., ¼ shares	10 0 0	} £10	18 0 0
150	5	Do., ⅛ shares	5 0 0		9 0 0
150	5	Do., A shares	5 0 0		9 0 0
150	5	Do., B shares	5 0 0		9 0 0
150	5	Do., C shares	2 0 0		5 0 0
1500	10	Colney Hatch	10 0 0	5 0 0	10 10 0
	5	Colyton (Lim.)	2 10 0		
320	5	Conway (Limited)	5 0 0		5 0 0
		Corsham			
		Corwen			
1200	10	Cottenham			
1600	25	*Coventry*	25 0 0	8 0 0	35 0 0
	25	Do., new shares	25 0 0	7 10 0	
400	5	Cowbridge	5 0 0	6 0 0	6 0 0
500	10	Cowes	10 0 0	5 0 0	
		Cradley Heath			
190	10	Cranbrook. £1900	10 0 0	7 10 0	
		Crawley		4 10 0	
		Crayford & Bexley.			
		Crays			
420		Crediton	5 0 0	5 0 0	6 0 0
300	10	Crewkerne	10 0 0	6 0 0	10 0 0
		Crickhowell G. & W.			
		Cricklade (L.) £1000			
200	10	Croft & Hurworth	9 0 0		
1200	1	Crook (Limited)	1 0 0	10 0 0	1 5 0
		Croston (Limited).			
251	5	Crowland	5 0 0	7 0 0	
181	10	Crowle, Lincoln	10 0 0	10 0 0	
8000	5	*Croydon Commrcl.*	5 0 0	7 10 0	7 0 0
		Cuckfield			
	10	Darenth Vale (L.)			
250	20	*Dartford*	20 0 0	7 0 0	27 0 0
700	5	Dartmouth (Lim.)	5 0 0	7 0 0	6 0 0
125	20	Daventry	20 0 0	5 0 0	24 8 0
165	10	Dawley	10 0 0	5 0 0	10 0 0
346	5	Dawlish	5 0 0	8 0 0	7 10 0
1400	10	*Deal & Walmer.*	10 0 0	6 10 0	12 0 0
1400	1¼	Do.	1 5 0	4 0 0	1 0 0
350	10	Do.	5 0 0	6 10 0	6 0 0
1200	1	Deddington	1 0 0		
		Dedham (L.) £1000			
		Delph, Yorkshire			
500	6	Denbigh	6 0 0	5 0 0	6 0 0
1750	25	*Derby*	25 0 0	10 0 0	52 0 0
		Dereham			
7000	5	*Devonport*	5 0 0	9 0 0	9 0 0
3000	5	Do., preference	4 0 0	5 0 0	4 0 0
7400	5	*Dewsbury & Batley* A shares	5 0 0	10 0 0	9 17 6
7400	5	Do., B shares	5 0 0	7 10 0	7 10 0
7600	5	Do., C shares	2 10 0	7 10 0	4 5 0
		Diss			
400	5	Dolgelly	5 0 0		
400	2½	Do., new shares	2 10 0		
160	10	Donnington	10 0 0	5 0 0	10 0 0
340	27½	Dorchester	25 0 0	5 0 0	27 10 0
120	25	Dorking	24 0 0	5 0 0	25 0 0
		Donnington, Linc.			
192	25	Douglas, I. of Man	25 0 0	8 0 0	30 0 0
219451	Sk.	*Dover*	100 0 0	6 0 0	100 0 0
1855	10	Do., new shares	10 0 0	6 0 0	10 0 0

No. of Shares Issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
	£		£ s d	£ s d	£ s d
500	10	Dowlais (Limited)	10 0 0	8 0 0	12 0 0
25	60	Downham Market	60 0 0	7 10 0	
	5	Downton (Limitd; £2006			
		Driffield			
3000	5	*Drighlington and Gildersome*	5 0 0	7 10 0	7 15 0
		Droitwich			
1100	20	*Droylsden*	10 0 0	8 0 0	15 0 0
900	30	*Dudley*	30 0 0	10 0 0	38 to 40
485	30	Do., pref. sh.	30 0 0	9 10 0	
800	10	Do., new shares	5 0 0	10 0 0	
1500	20	*Dukinfield*	16 0 0	10 0 0	34 0 0
200	10	Dunmow	10 0 0	5 0 0	10 0 0
		Dunstable			
900	10	Durham	10 0 0	10 0 0	} £26
900	10	Do., new shares	5 10 0	10 0 0	
250	10	Dursley, Gloucstr.	9 0 0	6 0 0	9 5 0
150	5	Easingwold	5 0 0	5 0 0	
		East Barnet G. & W.		4 10 0	
400	10	*Eastbourne*	10 0 0	5 0 0	11 0 0
90	20	East Dereham	20 0 0	5 0 0	21 0 0
336	5	East Grinstead	5 0 0	6 0 0	5 0 0
		Easton (Limited)		5 0 0	
1200	5	East Retford	5 0 0	10 0 0	7 10 0
		Eckington & Mosboro' (Limited)			
	10	Edenbdg. (L.) £2000			
		Edgware			
		Egremont, Cumb.			
703	6¼	*Eliand*	6 10 0	8 0 0	10 0 0
800	5	Elsecar (Limited)	5 0 0	5 0 0	5 12 0
		Eltham			
200	10	Emsworth			
400	5	*Enfield*	5 0 0	5 0 0	5 0 0
		Epping (Limited)			
300	19	Epsom & Ewell	19 0 0		
		Erith			
325	10	*Eton*	10 0 0	5 0 0	10 0 0
700	10	Evesham (Lim.)	10 0 0	7 0 0	11 to 12
1600	25	*Exeter*	25 0 0	8 0 0	40 to 42
250	10	*Exmouth*	10 0 0	5 0 0	10 0 0
58	25	Eye	25 0 0	5 0 0	25 0 0
170	10	Fairford	10 0 0	3 0 0	
		Fakenham (Lim.) £3500			
		Falkingham			
		Falmouth			
100	38	*Fareham*	38 0 0	5 0 0	
256	25	Farnham	25 0 0	7 0 0	35 0 0
		Farnworth and Kearsley			
		Farringdon			
140	50	Faversham	50 0 0	10 0 0	66 0 0
		Fazeley (L.) £3000			
120	10	Fenny Stratford (Limited)	10 0 0	5 0 0	11 0 0
	5	Filey	5 0 0	5 0 0	5 0 0
	5	Finedon (L.) £2000			
		Fleetwood			
3600	10	*Folkestone*	10 0 0	7 10 0	15 0 0
280	5	Framlingham	5 0 0	5 0 0	5 10 0
1155	1	Frodsham (Lim.)	1 0 0	7 10 0	1 1 0
480	25	*Frome*	25 0 0	10 0 0	35 0 0
		Furness G. and W.			
12000	Sk.	*Gainsborough*	All	6 13 4	120 to 123
400	20	Do., new shares	9 0 0	6 13 4	10 0 0
170	10	Gillingham (Lim.) Dorset	10 0 0	3 0 0	
103	25	Glastonbury	25 0 0	4 0 0	15 0 0
600	10	*Glossop*	10 0 0	9 0 0	16 0 0
600	5	Do.	5 0 0	9 0 0	8 0 0
1800	10	Do., new shares	6 10 0	7 10 0	8 10 0
1000	25	*Gloucester*, A sh.	25 0 0	10 0 0	42 0 0
856	25	Do., B shares	21 15 0	7 10 0	28 0 0
260	20	Godalming	20 0 0	5 0 0	20 0 0
300	5	Do., new shares	5 0 0	5 0 0	5 0 0
100	20	Do., do.	8 0 0		
100	5	Do., do.	2 0 0		
	5	Golborne (L) £5000			
621	5	*Gomersal*	5 0 0	6 0 0	6 7 6
		Gorleston & Sthdn.			
855	25	*Gosport*	25 0 0	9 0 0	37 10 0
	5	Goudhurst (Lim.)			
		Grange & Cartmel District			
450	20	Grantham	20 0 0	7 0 0	28 0 0
1000	20	*Gravesend*	20 0 0	5 0 0	21 0 0
		Grays Thurrock			
643	5	Gt. Berkhampstd.	5 0 0	6 0 0	5 10 0
1000	10	*Great Grimsby*	10 0 0	10 0 0	17 0 0
1000	6¼	Do., new shares	4 10 0	10 0 0	8 2 6
700	5	Great Harwood	5 0 0	4 5 0	
280	5	Do., new shares	1 0 0		
210	10	Great Marlow	10 0 0	5 0 0	10 0 0
		Great Stanmore			
		Great Torrington			
450	5	Great Wigston	5 0 0	6 0 0	
150	1	Do., new shares	1 0 0	6 0 0	
	5	Greenhithe (Lim.)			
1300	10	Guernsey	9 0 0	10 0 0	17 0 0
352	25	*Guildford*, A sh.	25 0 0		
352	3	Do., B shares	3 0 0		
		Do., new shares			
25	100	Guisborough	60 0 0	10 0 0	
	44/5	Haddenham (Lim.)			
		Hadleigh Cons. (L)			
240	5	Hadlow (Limited)	5 0 0		
140	10	Hailsham	10 0 0	6 0 0	10 0 0
40	50	Halesowen	50 0 0	6 0 0	
300	5	Halesworth	5 0 0	7 10 0	6 5 0
240	5	Haltwhistle (Lim.)	5 0 0	4 10 0	5 0 0
		Hampton Court			
1000	10	*Harrogate*	10 0 0	7 10 0	17 0 0
1000	3½	Do., new shares	3 6 8	10 0 0	5 12 6
900	10	Do., do.	10 0 0	7 10 0	12¾ to 13
6800	5	*Hartlepool G. & W.*	5 0 0	6 0 0	6 0 0
13200	5	Do., new shares	5 0 0	6 0 0	6 0 0
6597	5	Do., do.	2 10 0	6 0 0	2 18 0
1000	1	Hartley Wintney, Harwich	1 0 0	2 10 0	21s. to 23s.
300	5	Haslemere			
662	6	*Haslingden*	6 0 0	10 0 0	10 0 0
343	6	Do., A shares	4 0 0	10 0 0	6 0 0
1650	25	*Hastings and St. Leonards*	25 0 0	8 0 0	
1500	20	Do.	12 0 0	7 0 0	
	1	Haswell Gas and Water (Limited)			
180	10	Hatfield			
	5	Hathrigh (L) £2000			
		Harlow and Sawbridgeworth			
500	5	Havant	5 0 0	3 0 0	5 0 0
120	10	Haverhill	10 0 0	5 0 0	10 0 0
840	5	Hawick	5 0 0	10 0 0	10 0 0
	5	Hawkhurst (Lim.)			
244	5	Haworth	5 0 0		5 5 0
		Hay (L.), Brecon			
		Haydon Bridge			
8500	1	Hebden Bridge	1 0 0	10 0 0	1 12 6
170	10	Heckington (Lim.)	10 0 0		10 0 0
		Heckmondwike			
120	10	Hedon (Limited)	10 0 0	3 0 0	
145	12	Helston	12 0 0	9 0 0	
250	10	Hemel Hempstead	10 0 0	4 0 0	7 0 0
500	10	Henley (Limited)	10 0 0	5 0 0	10 0 0
		Hereford. £10,000		4 10 0	
300	10	Herne Bay	10 0 0	6 0 0	11 0 0
1300	10	*Hertford*	8 0 0	7 10 0	12 0 0
		Hessle (L.) £1500			
270	10	Hexham	10 0 0	8 0 0	15 0 0
160	10	Higham Ferrers	10 0 0	7 0 0	12 0 0
		Highworth, Wilts.			
520	5	High Wycombe	5 0 0	6 0 0	6 16 0
300	10	Hinckley	10 0 0	7 10 0	10 0 0
600	5	Hindley, Lancash.	3 0 0		3 0 0
200	20	Hitchin	20 0 0	8 0 0	
200	5	Do., new shares	5 0 0	8 0 0	
880	5	Hoddesden	5 0 0	7 0 0	6 0 0
	5	Hogsthpe (L) £1000			
		Holbeach			
	5	Hollingbourne (L) £2000			
600	20	*Holmfirth*	19 0 0	6 10 0	21 10 0
960	5	Holyhead	5 0 0	6 0 0	6 2 6
		Holywell (*see* Brit. Prov.)			
98	25	Honiton	25 0 0	3 12 0	20 0 0
1250	1	Honley (Limited)	1 0 0	5 0 0	1 0 0
6	500	Horncastle	£500		
	5	Hornchurch (Lim.)			
		Hornsey (Lim.)			
1200	2½	Horsforth	2 10 0		2 10 0
303	20	Horsham	20 0 0	10 0 0	26 0 0
	10	Houghton-le-Sprg.	10 0 0	8 10 0	27 to 30
		Howden			
1700	20	*Hudderafield*	20 0 0	10 0 0	37 5 0
250	20	Do., new shares	15 0 0	10 0 0	
		Hull			
		Hull-Sculcoates (*see* B. Prov.)			
210	10	Hungerford	10 0 0	5 0 0	10 0 0
1200	10	*Huntingdon*	10 0 0	8 0 0	16 5 0
		Hurstpierpoint			
600	10	*Huyton & Roby*	10 0 0	5 0 0	12 10 0
300	10	Do., new shares	9 0 0	5 0 0	11 10 0
2500	10	*Hyde*	9 0 0	5 10 0	10 15 0
	5	Hythe (L.) £2000			
400	10	*Hythe and Sandgate*	10 0 0	6 0 0	10 15 0
		Idle & Eccleshill (*see* Airdale)			
		Ilford			
198	12	Ilfracombe	2 0 0	4 0 0	8 to 9
560	6¼	Ilkestone	6 5 0	11 4 0	8 0 0
		Ilkley			
		Ilminster			
250	5	Ingatestone (Lim.)	5 0 0	1 10 0	
2800	10	*Ipswich*	10 0 0	10 0 0	16 10 0
1400	10	Do.	10 0 0	7 10 0	15 0 0
200	10	Do.	7 10 0		
		Ironbridge			
180	10	Irthlingborough	10 0 0	7 0 0	10 0 0
800	30	*Isle of Thanet* (Margate & Ramsgate.)	39 0 0	10 0 0	60 0 0
		Jersey, St. Helier's			
		Kegworth			
363	5	Kelvedon (Lim.)	5 0 0		
1842	10	*Kendal United Gas and Water*	10 0 0	10 0 0	19 10 0
380	20	Do., preference	20 0 0	7 10 0	33 0 0
290	10	Kenilworth (Lim.)	10 0 0	4 0 0	10 0 0
400	5	Keswick	5 0 0	5 0 0	4 0 0
228	25	Kettering	25 0 0	6 0 0	30 0 0
		Ketton (L.) Rutld.		7 0 0	
	5	Keymer and Ditchling (Limited)			
		Keynsham			
500	5	Kibworth	5 0 0	6 0 0	7 0 0
		Kidderminster		5 0 0	
800	5	Kidsgrove	5 0 0	12 0 0	7 10 0
150	10	Kimbolton	10 0 0	7 0 0	12 0 0
140	7	Kingsbridge	7 0 0		10 to 11
270	5	King's Cliffe	5 0 0	5 10 0	5 0 0
		Kingstn-on-Tham.			
		Kingswinford District (Limited)			
		Kington, Hereford			
400	5	Kinver, Staffordsh.	5 0 0		5 0 0
	1	Kippax (Limited)			
		Kirby Lonsdale			
		Kirkburton			
400	5	Kirkby Stephen (L)	5 0 0		
330	5	Kirkham, Lanc.	5 0 0	4 0 0	5 0 0
330	2½	Do., new shares	2 10 0	4 0 0	2 10 0
	5	Kirkhampton, Dalton, and Lepton (Limited) £5006			
200	10	Kirton-in-Lindsey	10 0 0	5 0 0	10 10 0
200	5	Knighton (L.)	5 0 0		
1000	10	*Knottingley*			
670	5	Knutsford Gas and Water (Limited)	5 0 0	8 0 0	5 10 0
319	5	Do.	33 0 0	8 0 0	3 10 0
	5	Lamborne (L) £1200			
		Lamptr., Llandssl., Tregrn. & Aber.			
30000	Sk.	*Lancaster*	All.	8 0 0	150 0 0
	5	Langley Mill and Heanor (Lim.)			
50	25	Langport	5 0 0	4 0 0	15 0 0
		Launceston			
		Lea Bridge (*see* County & Gen)			
1500	20	*Leamington Priors*	20 0 0	8 0 0	28 0 0
1500	20	Do., new shares	11 0 0	7 0 0	13 10 0
213	10	Leatherhead	10 0 0	5 0 0	10 0 0
		Ledbury			
		Leeds Company—			
190200	Sk.	Consolidated stk.	£100	6 0 0	115 0 0
6790	5	Do., new	2 0 0	6 0 0	2 15 0
192500	Sk.	*Leeds New Company*	£100	6 0 0	114 to 115
6500	5	Do., B shares	4 0 0	6 0 0	4¼ to 4¼
		Leeswood (Lim.)			
3900	13	*Leicester*	13 0 0	10 0 0	23 0 0
5000	10	Do., new shares	10 0 0	7 10 0	15 0 0
		Leigh £2000		7 0 0	
476½	21	Leighton Buzzard	21 0 0	8 0 0	30 0 0
500	10	Leominster	10 0 0	7 0 0	10 10 0
330	25	Lewes, A shares	25 0 0	8 0 0	31 5 0
644	5	Do., B shares	5 0 0		6 5 0
245	5	Leyburn, Yorksh	5 0 0		6 0 0
		Leyland, Lancash			
250	20	Lichfield	20 0 0	10 0 0	40 0 0
320	25	*Lincoln*	25 0 0	10 0 0	70 0 0
300	5	Lindfield (Limited)	5 0 0	8 0 0	5 0 0
240	5	Liskeard	5 0 0	7 10 0	6 0 0
		Littleborough			
240	5	Littlehampton	5 0 0	10 0 0	5 0 0
	5	Littleport (Limited) £2000			
	Sk.	*Liverpool United*	£100	10 0 0	208 0 0
	25	Do.	5 0 0	7 0 0	5 12 6
259	5	Llandovery (Lim.)	1 10 0	7 0 0	
1212	10	Llandudno Gas and Water (Lim.)	10 0 0	7 0 0	11 0 0
		Llanelly £5000			
		Llanfyllin (L) £2000			
		Llangollen			
250	10	Llanrwst (Limited)	9 15 0	5 0 0	9 15 0
	5	Llantrisst. (L) £2000			
	10	*Llynvi Valley*			
272	5	Loddon	5 0 0	3 0 0	5 0 0
		Long Buckby (L.)			
	5	Longrdg. L. £10,000			
120	10	Long Sutton (Lim.)	10 0 0	7 10 0	11 to 12
2000	10	*Longton*	10 0 0	6 0 0	14 0 0
1000	10	Do., new shares	2 0 0	6 0 0	2 5 0
		Longwood, near Huddersfield			
250	5	Lostwithiel	5 0 0	4 0 0	6 0 0
250	1	Do., new shares	1 0 0	5 0 0	1 10 0
1422	6	*Loughborough*	6 0 0	10 0 0	11 15 0
240	25	*Louth*	25 0 0	10 0 0	35 0 0
2500	10	*Lowestoft G. & W.*			
611	5	Ludlow Union	5 0 0	5 0 0	5 0 0
250	5	Do., pref. shares	5 0 0	5 0 0	
640	10	*Luton*	10 0 0	7 10 0 & Bns.	12 0 0
640	5	Do., preferential	5 0 0	4 0 0	5 0 0
640	5	Do., new shares	5 0 0	7 10 0 & Bns.	6 0 0
100	20	Lutterworth	20 0 0	6 5 0	25 0 0
5		Lydd (Lim.) £2000			
		Lydney (L.) £3000			
63	20	Lyme Regis	20 0 0	4 0 0	20 0 0
120	25	Lymington	25 0 0	5 0 0	25 0 0
400	10	Lymm	9 0 0	6 0 0	10 0 0
300	10	Maidenhead	10 0 0	5 0 0	10 0 0
500	25	*Maidstone*, A sh.	25 0 0	10 0 0	45 0 0
500	25	Do., B shares	25 0 0	4 0 0	20 0 0
	25	Do., new shares	25 0 0	7 10 0	
204	23	Maldon	23 0 0	7 0 0	27 0 0
200	10	Malmesbury	10 0 0	2 10 0	5 15 0
		Malpas (Limited)			
625	10	Malton	10 0 0		
793	7	Do.	7 0 0		
		Malvern Link			
		Manningtree			
		Mansfield £5000		10 0 0	
150	10	Mansfield Woodhse	10 0 0		
		March			
		Margate (*see* I. of Thanet)			
	10	Market Deeping (Limited)			
		Market Drayton			
132	25	Market Harboro'	25 0 0	7 0 0	35 0 0
		Market Weighton			
		Markyate St. (L.)			
		Marlborough			
150	10	Marsden (Lim.)	10 0 0	5 0 0	10 0 0
	5	Marlock (L.) £2000			
671	20	*Maryport District and Harbour*	14 0 0		14 5 0
600	5	Matlock (Lim)	5 0 0	6 0 0	
508	5	Matlock Bridge, Matlock Bank, & Matlk. Town (L.)	5 0 0	6 0 0	
200	2	Measham (Lim.)	1 12 6	5 0 0	
220	10	Melbourne	10 0 0	6 0 0	12 0 0
		Melksham			
934	2	Meltham	2 0 0	4 10 0	
		Melton Mowbray			
50	10	Mere	10 0 0		
330	35	*Merthyr Tydvil*	35 0 0	10 0 0	50 0 0
3300	Sk.	Do.	All.	5 0 0	100 0 0
120	10	Middleham	1 0 0	5 0 0	10 0 0
		Middletn-in-Teesd.			
400	5	Midhurst (Lim.)	5 0 0	2 10 0	5 0 0

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share	Div. per Cent. per Annum.	Price per Share.
	£		£ s d	£ s d	£ s d
		Midsmmr. Norton.			
198	5	Mildenhall	5 0 0	3 0 0	
1007	5	Milnrow (Limited)	1 10 0		
300	5	Milnthrpe(L.)£1500	4 10 0	3 6 8	
184	10	Milverton (Lim.)	10 0 0	5 0 0	10 0 0
2000	5	*Mirfield*	5 0 0	5 0 0	6 5 0
		Mitcham & Wimb.			
650	5	*Mold Gas & Water*	5 0 0	7 10 0	6¼ to 6½
700	10	Monmouth G. & W.	10 0 0	5 0 0	10 0 0
250	5	Montgomery (L.)	5 0 0		
	5	Moretonhampstead (Limited)			
150	10	Moreton-in-Marsh	9 2 6	4 0 0	9 2 6
1000	5	*Morley*, nr. Leeds	5 0 0	10 0 0	8 10 0
1000	2	Do.	2 0 0	10 0 0	3 8 0
220	16	Morpeth	16 0 0	5 0 0	17 10 0
		Mossley			
		Mottram			
	2	Narbrth (L.) £2000			
		Nayland			
		Neath			
		Neath New			
185	10	Needham Market	10 0 0	4 0 0	
		Nethrthng(L.)£700			
		Newark		10 0 0	
		Newburn			
250	20	Newbury	20 0 0	5 0 0	20 0 0
		Newcstle & Gatshd.			
		Nwcstle-un.-Lyne			
250	5	Newent	5 0 0		
		Newhaven, Sussex			
		New Malton			
600	5	Newmarket	5 0 0	4 0 0	4 0 0
366	2	Do., preference	2 0 0	6 0 0	2 0 0
		New Mill (L.) £7000			
200	20	*New Mills & Hayfield*	20 0 0	7 10 0	
70	20	Newnham (Lim.)	20 0 0	10 0 0	37 10 0
	5	Newport, Essex, (L.) £2000			
		Newport Pagnell			
360	35	*Newport, M.*, A sh.	35 0 0	9 0 0	50 0 0
540	35	Do., B shares	35 0 0	7 10 0	42 10 0
		Newport, Salop			
250	5	New Romney (Ld.)	5 0 0	5 0 0	5 0 0
		Newton Abbott			
198	10	Newtown, Mont.	10 0 0	6 0 0	10 0 0
		Northallerton			
777	20	*Northmptn.*, A sh.	20 0 0	10 0 0	34 0 0
777	20	Do., B shares	20 0 0	4 0 0	13 0 0
777	20	Do., C shares	20 0 0	7 10 0	25 0 0
2331	5⅔	Do.	3 13 4	7 10 0	4 5 0
		North Bierley			
		Northfleet (*see* Co. & General)			
		Northleach			
120	10½	North Walsham	10 10 0	5 0 0	10 15 0
871	15	Northwich	15 0 0	5 0 0	15 0 0
		Norwich (*see* Brit. Provincial)			
4600	50	*Nottingham*	50 0 0	5 10 0	60 0 0
	50	Do., new shares	50 0 0	5 10 0	63 0 0
268	8	Nuneaton (Lim.)	8 0 0	5 0 0	7 10 0
125	8	Do., new shares	8 0 0	5 0 0	7 10 0
		Oaken Gates, Salop			
240	5	Oakhampton(Lim.)	5 0 0		
200	10	Odiham	10 0 0	6 0 0	10 10 0
320	5	Old Goole (Lim.)	5 0 0	6 0 0	5 0 0
		Olney			
360	10	*Ormskirk*, old sh.	10 0 0	8 0 0	14 0 0
1080	10	Do., new shares	4 10 0	8 0 0	6 4 6
2400	5	*Ossett & Horbury*	5 0 0	10 0 0	10 0 0
600	5	Do., new shares	2 0 0	10 0 0	5 5 0
	10	Oswaldthwistle(L)			
		Oswestry			
		Otley, Yorkshire			
80	25	Oundle	25 0 0	7 0 0	25 0 0
600	15	*Over Darwen*, orig.	15 0 0	5 0 0	19 0 0
600	15	Do., A shares	15 0 0	5 0 0	19 0 0
1200	15	Do., B shares	7 10 0	5 0 0	10 0
1694	1	Over & Whrtn. (L)	1 0 0		1 2 0
320	5	Owston Ferry (L.)	5 0 0	5 0 0	5 0 0
120	150	*Oxford*	£150	9 10 0	380 0 0
1527	5	Padiham	5 0 0	6 0 0	6 0 0
338	2½	Painswick	2 10 0		2 10 0
		Pangbourne (L)			
		Pately Br., Yorksh.			
300	5	Peel, Isle of Man	5 0 0	7 0 0	6 to 7
		Pembroke (*see* Co. and General)			
500	20	*Peniston*			
250	20	Penrith	15 0 0	6 10 0	21 0 0
153	20	Penzance	20 0 0		15 0 0
		Pershore			
3000	10	*Peterborough*			
320	5	Petersfield	5 0 0	5 0 0	
300	10	Petworth	10 0 0	9 17 6	15 0 0
1250	2	Pewsey (Limited)	2 0 0	6 0 0	2 0 0
		Pickering			
2500	10	*Plymouth & Stnk.*	10 0 0	10 0 0	19 0 0
2500	10	Do., new shares	10 0 0	7 10 0	14 0 0
2500	10	Do., new shares	3 0 0	7 10 0	4 10 0
160	10	Pocklington	10 0 0		5 0 0
		Ponder's End & Enfield Highway (L.)			
		Pontefract			
		Pontypridd		4 0 0	
400	10	Poole	10 0 0	10 0 0	15 0 0
344	2	Do., new shares	2 0 0	10 0 0	3 0 0
	10	Porth Cawl (Lim.)			
643	5	Port Madoc (Lim.)	5 0 0	5 0 0	
		Port Talbot			
		Portishead £5000			
600	53	*Portsea Island*	53 0 0	8 0 0	60 0 0
600	50	Do., new shares	50 0 0	8 0 0	57 0 0
600	50	Do., new shares	49 0 0	8 0 0	56 0 0
9000	Sk.	Do.		5 0 0	92 0 0
120	10	Potton, Bedfordsh.	10 0 0	5 0 0	10 0 0
400	10	*Prescot*	10 0 0	5 0 0	
		Presteign			
120000	Sk.	*Preston*	All.	10 0 0	210 0 0
12000	,,	Do.	All.	7 0 0	140 0 0
	5	Prittlewell(L)£2000			
1000	10	Provincial (Hull)	8 0 0		8 0 0
600	20	*Pudsey*	20 0 0	10 0 0	35 0 0
600	6⅔	Do., new shares	6 13 4	10 0 0	11 13 4
600	20	Do.	20 0 0	7 0 0	26 0 0
600	6⅔	Do.	6 13 4	7 0 0	8 13 4
600	20	Do.	2 0 0	7 0 0	3 10 0
600	6⅔	Do.	0 13 4	7 0 0	1 3 4
93	20	Pwllheli [sorrel	20 0 0	2 10 0	25 0 0
600	5	Quorndon&Mount-	5 0 0	7 0 0	12 0 0
900	10	*Radcliff & Pilkington*, No. 1	10 0 0		
		Do., No. 2	6 0 0		
2100	10	Ramsay, I. of Man	20 0 0	6 10 0	23 0 0
200	20	Ramsey, Hunts			
		Ramsgate (*see* I. of *Rastrick* [Thanet)			
		Rawmarsh			
20000	Sk.	*Reading*	100 0 0	8 0 0	120 5 0
5000	,,	Do.	100 0 0	5 0 0	100 10 0
1000	10	Do.	10 0 0	7 0 0	11 0 0
500	10	Do., preference	10 0 0	5 0 0	10 10 0
		Redbourn(L) £1100			
400	5	Redcar	5 0 0	4 0 0	5 0 0
1200	5	*Redhill*	5 0 0	7 0 0	6 0 0
		Redruth			
		Reigate			
1200	1	Repton (Limited)	1 0 0	5 0 0	1 1 0
2000	10	*Richmond*, Sry.(L.)	10 0 0	7 0 0	15 0 0
		Risca & Pontynstr.			
600	5	Rhosllanerchrugog	3 0 0	7 10 0	5 0 0
		Rhymney (Lim.)			
400	5	Rickmansworth	5 0 0		5 0 0
180	10	Ringwood	10 0 0	5 0 0	10 0 0
		Ripley			
		Risborough			
	5	Robertsbridge (L.)			
		Robin Hood's Bay			
280	50	*Rochester & Chat-*		6 0 0	
		Rochford [*ham*			
2600	5	Romford	5 0 0	6 0 0	5 5 0
220	10	Romsey	10 0 0	7 10 0	12 10 0
3093	10	Rossendale Union	10 0 0	9 10 0	17 0 0
600	10	Do., Preference	10 0 0	9 10 0	17 0 0
2597	10	Do., New issue	6 0 0	9 10 0	11 0 0
1503	10	Do., Second issue	8 0 0	7 0 0	10 10 0
7500	Sk.	*Rotherhm.*, A stock	100 0 0	10 0 0	186 to 190
2500	Sk.	Do., B stock	100 0 0	8 0 0	152 to 154
600	20½	Do., new shares	10 0 0	8 0 0	14¼ to 15
		Rothwell			
		Rowley Regis and Blacheath £4000			
350	10	Royston	10 0 0	5 0 0	9 10 0
500	5	Ruabon	5 0 0	1 15 0	4 15 0
150	20	Rugby	20 0 0	10 0 0	
150	5	Do., ¼ shares	5 0 0	10 0 0	
150	6¼	Do., ¼ shares	6 13 4	10 0 0	
150	10	Do., new shares	10 0 0	10 0 0	
150	2½	Do., do.	2 10 0	10 0 0	
150	3¾	Do., do.	3 6 8	10 0 0	
430	10	Rugely	10 0 0	5 0 0	10 16 0
2400	5	*Runcorn*	5 0 0	8 0 0	
2400	5	Do., new shares	3 5 0	5 0 0	
114	31¼	Ruthin	31 5 0	6 16 0	40 0 0
1500	12	*Ryde*	12 10 0	8 0 0	15 0 0
500	5	Rye	5 0 0	6 0 0	6 0 0
		Saddleworth			
225	20	Saffron Walden	20 0 0	5 0 0	20 0 0
225	20	Do.	10 0 0		
1400	5	St. Alban's Gas & Water (Lim.)	5 0 0	5 0 0	5 5 0
320	5	St. Asaph (Lim.)	5 0 0		
		St. Austell			
		St. Bees (Lim.)			
		St. Colomb			
3000	10	*St. Helen's*	10 0 0	10 0 0	20 0 0
1500	10	Do.	8 0 0		
		St. Ives, Cornwall			
		St. Mary's Cray			
320	5	Salcombe	5 0 0		
880	12½	*Salisbury*	12 10 0	10 0 0	17 10 0
160	12½	Do., preference	12 10 0	6 0 0	15 0 0
160	12½	Do., new shares	12 16 0	8 0 0	16 0 0
341	10	Sandbach	10 0 0	5 0 0	12 10 0
		Sandown (Lim.)			
381	10	Sandwich	10 0 0	5 0 0	
		Sandy, Beds			
	5	Sawston (L.) £2000			
100	10	Saxmundham	10 0 0	5 0 0	
2000	10	*Scarborough*	10 0 0	7 0 0	13 0 0
1000	10	Do.	6 0 0	7 0 0	12 2 6
540	5	Sedburgh	5 0 0		
300	16	Selby	16 0 0	7 10 0	
140	5	Settle (Limited)	3 10 0	5 0 0	
290	10	Sevenoaks	10 0 0	4 0 0	10 0 0
400	10	Shaftesbury(Lim.)	10 0 0	6 0 0	10 0 0
565	5	Sheepshed (Lim.)	5 0 0	6 0 0	6 0 0
133000	Sk.	*Sheffield United*, A stock	100 0 0	10 0 0	199 to 200
129984	Sk.	Do., B stock	100 0 0	10 0 0	197 to 198
2633	30	Do., C shares	20 0 0	10 0 0	46¾ to 47¼
600	5	Shefford (Limited)	4 0 0		
		Shelton, Potteries (*see* Brit. Prov.)			
2900	5	Sheppy, Sheerness	5 0 0	10 0 0	7 0 0
800	5	Do., pref. sh.	5 0 0	4 0 0	
400	5	Do., A shares	3 0 0	10 0 0	5 0 0
350	10	Shepton Mallet	10 0 0	7 10 0	10 0 0
120	10	Shepton - under - Wychwood (L.)			
1500	5	Sherborne	5 0 0	5 0 0	5 10 0
		Shiffnal, Salop			
1000	5	*Shipley*	5 0 0	6 0 0	7 10 0
150	10	Shipston-on-Stour	10 0 0	4 0 0	
		Shirley & Freemantle, Hants			
240	25	Shotley Br. (Lim.)	25 0 0	7 0 0	26½ to 27
240	10	Do., new shares	10 0 0	7 0 0	
1000	10	*Shrewsbury*, A sh.	10 0 0	10 0 0	20 0 0
1000	10	Do., B shares	10 0 0	5 0 0	10 0 0
1000	10	Do., new shares	10 0 0	7 10 0	15 0 0
		Sible Hedingham			
	5	Sidmouth (L.)£4000			
7000	Sk.	*Skipton*	100 0 0	9 0 0	150 0 0
400	2½	Do., new shares	2 10 0	5 0 0	3 0 0
		Slaithwaite			
250	20	Sleaford	20 0 0	5 0 0	20 0 0
250	10	*Slough*	10 0 0		
340	5	Snaith	5 0 0		4 0 0
		Soham			
	5	Somersham(L.)£1500			
150	10	Somerton	10 0 0		
354	5	Southam	5 0 0		
1000	50	*Southampton*	50 0 0	10 0 0	
		Southborough			
		Southend, Essex			
		Southgate & Colney Hatch			
220	10	South Molton	10 0 0	5 10 0	7 10 0
		South Petherton(L)			
2000	10	*South Shields*	10 0 0	9 0 0	15 to 17
248	10	Southwell (Lim.)	10 0 0	5 0 0	11 to 11¼
300	5	Southwold	5 0 0	5 0 0	5 0 0
1470	1	Spennymoor(Lim.)	1 0 0		
400	5	Spilsby	5 0 0		
		Spittal, Berwick-on-Tweed			
2000	6⅔	*Stafford*	6 13 4	10 0 0	11 0 0
2000	6⅔	Do., new shares	5 0 0	8 0 0	6 0 0
178	5	Staindrop	5 0 0	6 0 0	5 0 0
248	25	Staines & Egham	25 0 0	6 0 0	26 to 27
		Staithes £1500			
		Staley Bridge		10 0 0	
225	50	*Stamford & St. Martin's*	50 0 0	9 0 0	75 0 0
	5	Staplehurst (Lim.) £2000			
150	10	Staveley (Limited)	10 0 0	5 0 0	11 10 0
300	5	Stevenage	5 0 0	5 0 0	5 0 0
2500	10	*Stoke, Fenton &*	10 0 0	10 0 0	
500	10	Do., [*Longton*	2 0 0	10 0 0	
400	5	Stone, Stafford	5 0 0	5 0 0	6 0 0
220	10	Stoney Stratford	10 0 0	4 10 0	9 0 0
		Storrngtn(L) £1000			
		Stourbridge, £5000			
1100	1	Stow-on-the-Wold	1 0 0	5 0 0	1 0 0
150	20	*Stratford-on-Avon*	20 0 0	10 0 0	40 0 0
150	5	Do., new shares	5 0 0	10 0 0	10 0 0
375	8	Do., preference	8 0 0	5 10 0	8 10 0
750	5	*Stretford*	5 0 0	9 0 0	5 0 0
		Stroud			
261	20	Sudbury	20 0 0	6 10 0	21 10 0
		Sunbury (L), Mid.			
18120	5	*Sunderland*	5 0 0	9 0 0	8 10 0
4000	5	Do., new shares	5 0 0	8 10 0	8 0 0
200	10	Sutton Coldfield(L)	10 0 0		10 0 0
500	10	Sutton-in-Ashfield	10 0 0	8 0 0	15 0 0
600	5	Sutton & Hooton Gas and Water (Limited)			
		Sutton Southcoates & Drypool, Hull	20 0 0		23 to 24
		Sutton, Surrey			
		Sutton Valence			
600	5	Swadlincote	5 0 0	5 0 0	6 0 0
169	10	Swaffham	10 0 0	5 0 0	7 0 0
	5	Swanage (L.) £2500			
240	25	*Swansea*	25 0 0	10 0 0	45 0 0
1680	25	Do., new shares	25 0 0	7 10 0	34 0 0
		Swindon			
		Swindon New (L.)			
200	10	Swineshead (Lim.)	10 0 0	5 0 0	10 5 0
1000	5	Swinton & Mex-	5 0 0	7 0 0	7 0 0
180	10	Syston [boro'	10 0 0		10 0 0
276	5	Tadcaster	5 0 0	5 0 0	8 0 0
		Tamworth			
		Taporley (Lim.)			
		Tattershall & Coningsby (Lim.)			
2800	5	*Taunton*	5 0 0	7 0 0	6 15 3
2800	5	Do., new shares	4 10 0		5 0 0
800	5	Tavistock	3 3 9	12 0 0	6 0 0
200	5	Tenbury Union	5 0 0	5 0 0	5¼ to 6
150	10	Tenterden	10 0 0	4 0 0	8 0 0
181	10	Tetbury, Gloster	9 0 0	11 0 0	18 0 0
		Tewkesbury			
200	10	Thame	10 0 0	5 0 0	10 0 0
250	10	Thetford	10 0 0	6 0 0	10 to 11
150	10	Thornbury (Lim.)	10 0 0	4 0 0	
80	1	Do., new shares	1 0 0	4 0 0	
356	5	Thorne	5 0 0		4 0 0
160	10	Thrapston (Lim.)	10 0 0	5 0 0	10 0 0
	5	Ticehurst Gas Consumers (Lim.)			
		Tideswell (Lim.) £2000			
1885	5	Todmorden (Lim.)	5 0 0	7 10 0	7 10 0
1870	5	Do., B shares	3 0 0	7 10 0	4 10 0
600	2½	Topsham (Lim.)	2 10 0	5 0 0	
		Torpoint (Lim.)			
		Torquay			
		Torrington, Devon			
		Totnes			
		Totnes Consumers			
5000	5	*Tottenham & Edmonton*	5 0 0	8 0 0	6 0 0
150	10	Towcester	10 0 0	5 0 0	10 0 0
		Town-Malling			
300	5	Towyn(L) Merion.	5 0 0		5 0 0
275	10	Tring	10 0 0	5 0 0	10 0 0
		Trowbridge (*see* (British Prov.)			
320	25	Truro	25 0 0	10 0 0	
320	5	Do., new	5 0 0	10 0 0	
		Tunbridge			
2000	10	*Tunbridge Wells*	10 0 0	10 0 0	19 0 0
	5	Turvey (Limited)			
100	10	Tuxford	10 0 0	5 0 0	12 0 0

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
	£		£ s d	£ s d	£ s d
		Twyford (Limited)			
34570	Stk.	*Tynemouth*	All.	10 0 0	130 0 0
		Ulverston			
		Uppingham			
240	5	Upton-on-Severn	5 0 0	5 0 0	5 0 0
	5	Upwell & Outwell (L.) £2500			
400	5	Usk (Limited)	5 0 0	10 0 0	9 0 0
300	10	Uttoxeter	10 0 0	5 0 0	12 10 0
		Uxbridge & Hill.			
1500	20	*Ventnor*	10 0 0		
160	10	Wainfleet (Lim.)	10 0 0		8 0 0
1000	25	*Wakefield*	25 0 0	10 0 0	44 0 0
3660	5	Do.,	5 0 0	10 0 0	8 16 0
1732	5	Do., new shares	5 0 0	7 10 0	6 15 0
409	5	Walker & St. Anthony (L.)	5 0 0		7¾ to 8¼
		Walker & Wall. Un.			
300	10	Wallingford	10 0 0	5 0 0	8 0 0
		Walton-on-Tham. (*see* Co. & Gen.)			
200	10	Wantage	9 0 0	5 0 0	10 10 0
	2	Ware (Limited)			
100	10	Wareham	10 0 0	3 10 0	8 0 0
2000	1	Warkwth & Amble	1 0 0	3 10 0	
200	25	Warminster	25 0 0	6 0 0	28 0 0
900	20	*Warrington*	20 0 0	10 0 0	37 0 0
900	20	Do., new shares	18 0 0	10 0 0	30 0 0
		Warth			
		Warwick £15,000		6 0 0	
		Watchet & W. £2500			
	2	Waterbch (L) £2000			
		Watford			
400	10	Weedon (Limited)	10 0 0	6 10 0	12 10 0
400	3	Do., new shares	1 10 0	6 10 0	1 17 6
111	25	Welchpool, Montg.	25 0 0	5 0 0	25 0 0
200	25	Wellingborough	25 0 0	5 0 0	25 0 0
450	10	Wellington, Salop	10 0 0	7 10 0	12 10 0
200	20	Wellington, Som.	20 0 0	7 10 0	20 0 0
160	25	*Wells*, Somerset	25 0 0	10 0 0	
		Wem (Lim.) £2000			
	5	Wendover (Lim.)			
		W. Auckland & St. Helen's, Auckland (Lim.)			
160	10	Westbury	10 0 0		
		West Cowes			
225	10	Westerham (Lim.)	10 0 0	5 0 0	11 0 0
		West Kent			
454	5	West Malling Gas and Water	5 0 0	3 0 0	4 10 0
200	20	*Weston-s.-Mare*, A shares	20 0 0	10 0 0	35 0 0
200	20	Do., B shares	20 0 0	7 10 0	26 0 0
800	20	Do., C shares	12 10 0	7 10 0	16 0 0
200	5	Wetherby	5 0 0		1 10 0
2000	10	*Weymouth Cons.*			
		Whaley Bridge			
2300	1	Whitchurch, Hants	0 10 0	5 0 0	
400	25	Whitehaven	25 0 0	2 0 0	14¼ to 15
		Whitehaven New			
		Whitstable			
		Whittington			
250	10	Whittlesea	10 0 0	5 0 0	11 0 0
500	10	Whitwick & Coalville	10 0 0		10 0 0
1200	5	*Whitworth Vale*	5 0 0	4 0 0	7 0 0
1200	5	Do., new shares	4 7 6	4 0 0	6 7 6
	5	Wickm. M. L. £1000			
		Widnes Gas & Wtr.			
1250	10	*Wigan*	10 0 0	10 0 0	20 0 0
1250	10	Do., preference	10 0 0	5 0 0	10 0 0
2500	10	Do., new shares	5 0 0	7 10 0	8 15 0
400	5	Wigston	5 0 0	6 0 0	5 0 0
		Wigton, Cumberd.			
1020	5	*Willenhall*, A shares	5 0 0		
1020	5*s.*	Do., B shares	2 14 0	5 0 0	
		Do., new shares			
		Wilton			
240	10	Wimborne Minster	10 0 0		
130	10	Wincanton	10 0 0	7 0 0	
		Wincheombe £1500			
		Winchester Gas & Water			
		Windermere Dist.			
1200	20	*Windsor* (*Lim.*)	20 0 0	9 0 0	25 0 0
1200	8	Do., pref. shares	8 0 0	5 0 0	8 0 0
120	20	Do.	20 0 0	7 0 0	20 0 0
141	10	Winslow	10 0 0	6 0 0	10 0 0
120	10	Winterton (Lim.)	10 0 0	5 0 0	
120	5	Do., new shares	5 0 0	5 0 0	
200	10	Wirksworth	10 0 0	5 0 0	10 0 0
		Wisbeach			
		Witham			
		Witney			
400	5	Wiveliscombe (L.)	5 0 0	6 0 0	5 5 0
		Wivenhoe (L) £2000			
200	10	Woburn	10 0 0	5 0 0	11 0 0
		Woking			
210	10	Wokingham	10 0 0	5 0 0	
54480	Stk.	*Wolverhampton*	10 0 0	10 0 0	19 5 0
4448	10	Do., new shares	8 10 0	10 0 0	15 12 6
550	10	Woodbridge (Lim.)	10 0 0	8 0 0	
660	2½	Woodstock	2 10 0	5 0 0	
		Woodhouses			
75 200	7	Wooler	7 0 0		
		Woolton			
2400	5	*Woolwich Consrs.*	5 0 0	10 0 0	8 0 0
2400	5	Do., do.	5 0 0	7 10 0	7 0 0
4800	5	Do., do.	3 0 0	7 10 0	4 0 0
		Woolwh. Equitable			
		Wootton Bassett			
2500	10	*Worcester*	10 0 0	10 0 0	20 7 6
		Workington			
600	10	*Worksop*	10 0 0	8 0 0	
600	5	Do., new shares	5 0 0	7 0 0	
245	50	*Worthing*	50 0 0	4 0 0	40 0 0
		Worsboroughdale & Worsboro.			
270	12	Wotton-un.-Edge	12 0 0	4 0 0	40 0 0
1800	5	Wrexham	5 0 0	10 0 0	8 10 0
900	3	Do., new shares	2 0 0	10 0 0	4 15 0
		Writtle			
		Wye, Kent			
		Wylam			
400	5	Wymondham	5 0 0	6 10 0	5 0 0
		Yarmouth, Isle of Wight			
800	30	*Yarmouth, Norfk.*	30 0 0	7 10 0	
800	7½	Do., ½ shares	7 10 0	7 10 0	
	5	Yatton Consumers (Limited)			
1675	4	*Yeadon & Guiseley*	4 0 0	5 0 0	4 8 0
1675	2	Do., new shares	0 5 0	5 0 0	0 5 6
280	30	Yeovil	30 0 0	6 0 0	30 0 0
280	10	Do.			
140	10	Do., new shares	10 0 0	6 0 0	10 0 0
		York Town			
15000	10	*York United*	5 0 0	10 0 0	10 15 0
		Yoxford			
	5	Ystalyfera L. £4000			
	10	*Ystrad Gas and Water*	2 0 0		
	5	Ystrad Rhondda (Limited)			

SCOTLAND.

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
	£		£ s d	£ s d	£ s d
26000	2½	Aberdeen	2 10 0	10 0 0	5 1 0
700	1	Aberlady			
		Abernethy			
		Aberlour (L.) £650			
500	10	Airdrie	10 0 0	9 0 0	14 10 0
		Alloa			
		Alva, nr. Stirling			
		Alyth			
600	7	Annan	7 0 0	6 0 0	7 0 0
1600	1	Anstruther & Cellardyke	1 0 0	8 0 0	1 6 0
825	20	Arbroath	20 0 0	7 10 0	30 0 0
100	20	Ardrossan	20 0 0	5 0 0	20 0 0
658	1	Auchinleck	1 0 0		
381	5	Auchterarder	5 0 0	7 10 0	7 10 0
750	2	Auchtermuchty	2 0 0	6 0 0	2 10 0
2932	5	Ayr	5 0 0	6 0 0	5 17 6
4250	2	Ayr and Newton Consumers	2 0 0	6 0 0	2 2 0
300	10	Banff	10 0 0	6 0 0	11 0 0
2158	1	Barrhead	1 0 0	7 10 0	1 0 0
200	5	Bathgate	5 0 0	5 0 0	5 0 0
		Beith			
976	1	Bervie	1 0 0	5 0 0	
		Biggar			
739	5	Blairgowrie	5 0 0	8 0 0	7 0 0
		Blantyre (Lim.)			
400	6	Borrowstowness	6 0 0	5 0 0	6 0 0
540	5	Brechin	5 0 0	10 0 0	11 10 0
		Bridge of Allan			
8350	2	Broughty Ferry	2 0 0	6 0 0	2 4 6
		Callender			
		Campbelton			
250	4	Carluke, Lanark	4 0 0	7 10 0	4 0 0
178	5	Castle Douglas	5 0 0	5 0 0	5 0 0
2530	3	Coatbridge	3 0 0	10 0 0	5 0 0
200	5	Coldstream	5 0 0	6 0 0	5 0 0
		Collinsburgh			
1000	1	Comrie	1 14 8	4 10 0	1 14 8
		Corstorphine			
1200	1	Crail, Fife	1 0 0	5 0 0	1 0 0
2744	1	Crieff	1 0 0	10 0 0	1 15 0
600	1	Cullen	1 0 0	5 0 0	0 15 0
280	2½	Cumbernauld	2 10 0	5 0 0	2 10 0
200	5	Cumnock	5 0 0	6 0 0	6 0 0
600	5	Cupar Angus	5 0 0	7 0 0	6 10 0
250	10	Cupar Fife	10 0 0	10 0 0	18 10 0
300	10	Dalkeith	10 0 0	10 0 0	20 0 0
		Deanston			
750	2	Denny	2 0 0	6 5 0	2 5 0
	5	Denny Consumers			
	5	Dornoch			
500	1	Douglas	1 0 0	6 0 0	1 2 0
		Dufftown			
		Dumbarton			
400	20	Dumfries	14 0 0	7 2 10	14 10 0
391	5	Dunbar	5 0 0	6 0 0	5 10 0
		Dunblane			
800	10	Dunfermline	10 0 0	10 0 0	16 10 0
		Dunkeld			
1750	2	Duncon	2 0 0	6 0 0	2 3 0
		Dunse			
250	5	Dysart	5 0 0	7 10 0	6 10 0
2327	1	East Wemyss	1 0 0	6 0 0	1 2 0
750	1	Ecclefechan	1 0 0		
6000	25	*Edinburgh*	25 0 0	10 0 0	52 0 0
6000	25	*Edinburgh & Leith*	20 0 0	6 0 0	26 0 0
621	12	Elgin	12 0 0	6 0 0	13 0 0
1300	1	Elie & Earlsferry	1 0 0	7 5 0	1 3 0
		Ellon			
		Errol			
		Eyemouth			
	14	Falkirk	14 0 0	7 0 0	14 0 0
		Falkirk, New			
632	2	Falkland	2 0 0	5 0 0	2 0 0
		Fettercairn			
2000	1	Ferry Porton Craig	1 0 0	6 5 0	1 3 0
581	1	Fochabers	1 0 0	5 0 0	1 2 0
1440	5	Forfar	5 0 0	7 10 0	7 12 6
360	5	Do., new shares	2 10 0	7 10 0	6 10 0
		Fort William			
2000	1	Fraserburgh	0 16 0	5 0 0	0 18 0
1800	5	Galashiels	5 0 0	10 0 0	8 0 0
		Gatehouse, n. Fleet			
900	2½	Girvan	2 10 0	6 0 0	2 10 0
6000	25	*Glasgow*	25 0 0	10 0 0	52 0 0
2600	25	Do., new shares	25 0 0	7 10 0	38 0 0
5000	10	*Glasgow City and Suburban*	10 0 0	10 0 0	20 0 0
5000	10	Do., new shares	10 0 0	7 10 0	15 0 0
		Grahamston			
190	10	Grangemouth	10 0 0	5 0 0	10 0 0
400	8½	Haddington	8 5 0	7 10 0	11 10 0
	1	Hamilton Corporation and Consrs.			
	5	*Hamilton, New*	5 0 0	4 10 0	6 0 0
1460	5	Hawick	5 0 0	7 10 0	8 2 6
300	5	Helensburgh	5 0 0	7 10 0	7 10 0
2000	2	Holywood (Lim.)	2 0 0	7 10 0	3 0 0
1312	1	Huntly	1 0 0	7 10 0	1 5 0
250	5	Inverary	5 0 0	10 0 0	6 12 6
1500	1	Inverkeithing (L.)	1 0 0	5 0 0	1 0 0
1200	10	*Inverness Gas and Water*	10 0 0	7 10 0	13 0 0
2400	5	Do., new shares	5 0 0	7 10 0	6 10 0
		Inverury			
	10	Irvine	10 0 0	10 0 0	14 0 0
	2½	Do.	2 10 0	10 0 0	3 12 6
300	5	Jedburgh	5 0 0	7 10 0	7 10 0
		Johnstone, Paisley			
		Kelso, Roxburgh (L.)			
1300	1	Keith	1 0 0	5 0 0	0 11 0
600	5	Kelso	5 0 0	10 0 0	11 0 0
620	2	Kelsyth	2 0 0	5 0 0	2 0 0
950	1	Kennoway	1 0 0	5 0 0	1 1 0
1515	1	Kettle Fruechie, &c.	1 0 0	5 0 0	5 0 0
600	25	Kilmarnock	25 0 0	7 10 0	30 0 0
600	25	Do., new shares	7 10 0	7 10 0	
334	5	Kincardine	5 0 0	5 0 0	4 10 0
		Kinghorn			
		Kingskettle, Fife			
		Kinross			
1200	5	Kirkcaldy	5 0 0	10 0 0	10 10 0
320	5	Kircudbright	5 0 0	5 0 0	5 0 0
997	5	Kirkintulloch	3 0 0	6 13 4	3 7 0
		Kirkwall			
		Kirriemuir			
		Lanark			
3500	1	Lanark Consumers (Limited)	1 0 0	7 10 0	1 2 6
		Largo, near Leven			
280	8	Largs	8 0 0	7 10 0	8 10 0
1309	1	Lasswade	1 0 0		
177	5	Lauder	5 0 0	5 0 0	5 0 0
2000	1	Leslie, Fife	1 0 0	7 10 0	1 5 0
618	1	Lesmahago	1 0 0	6 0 0	1 0 0
		Leuchars			
906	5	Leven	5 0 0	10 0 0	7 0 0
100	10	Linlithgow	10 0 0	10 0 0	19 0 0
		Linton			
		Lochee, n. Dundee			
434	5	Lochgilphead (Ld.)	5 0 0	7 0 0	5 10 0
380	5	Lochwinnock	5 0 0	3 10 0	4 0 0
	14/5	Lockerbie (Lim.)	5 0 0		
		Macduff			
1200	1	Markinch, Paisley	1 0 0	8 0 0	1 5 0
		Maryhill, nr. Glasgow			
282	3	Mauchline	3 0 0	5 0 0	3 0 0
667	5	Maxwell Town and Dumfries	5 0 0	5 0 0	3 to 3¼
423	5	Maybole, Ayrshire	5 0 0	4 10 0	5 0 0
		Meigle (L.) £700			
373	2	Melrose	2 0 0	7 10 0	2 10 0
718	2	Mid & East Calder	2 0 0		2 0 0
200	5	Moffat	5 0 0	5 0 0	
120	2½	Do., new shares	2 10 0	5 0 0	
400	20	Montrose	20 0 0	10 0 0	35 0 0
		Muirkirk (L.) £1000			
1000	5	Musselburgh	5 0 0	8 0 0	9 0 0
618	1	Nairn	1 0 0	5 0 0	1 0 0
		Neilston, n. Glasg.			
300	5	Newburgh, Fife	5 0 0	8 0 0	7 0 0
300	1	Do., new shares	1 0 0	8 0 0	
1200	1	Newmilns	1 0 0	7 10 0	1 2 0
		Newport, n. Dundee			
1300	1	Newport, Fife	1 0 0	5 0 0	1 0 0
		Newton-on-Ayre			
107	14½	Newton Stewart	14 10 0	5 0 0	14 10 0
300	5	N. Berwick, N.B.	5 0 0	5 0 0	7 10 0
		N. Queensferry			
245	5	Oban	5 0 0	7 10 0	5 7 6
1000	5	Peebles	5 0 0	6 0 0	5 0 0
500	2½	Do., new shares	2 10 0	6 0 0	2 10 0
1000	25	Perth	25 0 0	7 0 0	25 0 0
3000	5	Perth, New	5 0 0		0 3 0
		Peterhead			
2000	1	Pettenween	1 0 0	6 0 0	1 1 0
2416	1	Pollokshaws	1 0 0	7 10 0	1 5 0
		Port Glasgow			
		Portobello			
		Portsoy			
200	5	Prestonpans	5 0 0	6 0 0	
1594	1	Renton, Dumbrtn.	1 0 0	7 10 0	1 1 6
		Rothes			
1500	1½	Rutherglen	1 6 8	5 0 0	1 6 8
250	12	St. Andrew's	12 0 0	8 6 8	16 10 0
193	12	Do., new shares	12 0 0	8 6 8	16 10 0
400	5	Saltcoats	5 0 0	7 10 0	6 0 0
936	1	Sanquhar	1 0 0	5 0 0	0 15 0
30	1	Do., preference	1 0 0	5 0 0	
507	5	Selkirk	5 0 0	10 0 0	10 0 0
	2	Slamannan (Lim.)			
508	1	South Queensferry	1 0 0	5 0 0	1 0 0
200	5	Stewarton	5 0 0	10 0 0	6 to 6½
7450	2	Stirling	2 0 0	3 0 0	3 5 0
2500	1	Stonehaven	1 0 0	5 0 0	1 5 0
1110	1	Stonehouse	1 0 0	7 10 0	13s. to 15s.
600	2½	Stornoway	2 10 0	8 0 0	3 10 0
		Stow (Limited)			
500	5	Stranraer	5 0 0	10 0 0	6 13 6
588	2	Strathaven	2 0 0	8 0 0	3 0 0
643	2½	Thurso	2 10 0		2 10 0
		Tillicoultry			
		Turriff			
800	1	Tranent	1 0 0	5 0 0	1 0 0
		Troon			
		Tullibody			
2051	1	Wemyss & Bkhn.	1 0 0	6 0 0	1 0 0
		Wick			
665	5	Wigtown	5 0 0		

Share List of Water Companies.

See "Share List of Gas Companies" for Gas and Water Companies.

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
	£	**IRELAND.**	£ s d	£ s d	£ s d
1800	1	Antrim (Limited).	1 0 0		1 0 0
		Ardee			
300	10	Armagh (Lim.)	10 0 0	10 0 0	20 2 6
500	5	Athy (Limited)	4 0 0	6 0 0	5 0 0
		Balbriggan £1400.			
		Ballycastle			
1200	7½	Ballymena & Harryville (L.)	7 10 0	5 0 0	7 10 0
184	10	Ballymoney	10 0 0	5 0 0	10 0 0
220	5	Ballynahinch(Ld.)	5 0 0	5 0 0	5 0 0
		Ballyshannon£2000			
		Bangor, Down			
5250	20	*Belfast*	20 0 0	10 0 0	39 0 0
2450	20	Do., new shares.	20 0 0	10 0 0	35 to 37
		Boyle (Limited).			
1047	5	Carlow	5 0 0	5 0 0	5 0 0
600	5	Carrickfergus(Ld.)	5 0 0	8 0 0	6 5 0
197	10	Carrickmacross(L.)	10 0 0	5 0 0	10 0 0
300	10	Carrick-on-Suir	10 0 0	6 0 0	10 0 0
228	10	Castleblaney (Ld.)	10 0 0	5 0 0	10 0 0
		Castlederg			
400	5	Cavan (Limited)	5 0 0		5 0 0
		Clones (L.) £2000			
2000	5	Clonmel Consmrs.	5 0 0	6 0 0	5 10 0
240	5	Comber (Limited).	5 0 0	5 0 0	5 0 0
500	5	Cookstown	5 0 0	5 0 0	
		Coote Hill			
12000	5	*Cork Consumers* (Limited)	5 0 0	8 0 0	7 15 0
6000	5	Do., new shares.	4 0 0	8 0 0	6 10 0
		Donaghadee £2000			
608	11	Drogheda	11 0 0	7 0 0	14 10 0
420	5½	Do., new shares.	5 10 0	7 0 0	7 5 0
19000	10	*Dublin Alliance*, A shares	8 0 0	6 0 0	10 15 0
10000	10	Do., B shares	5 0 0	6 0 0	6 7 6
13500	10	Do., C No. 1 sh.	10 0 0	6 0 0	12 17 6
12500	10	Do., C No. 2 sh.	4 0 0	6 0 0	5 7 6
440	25	Dundalk (Limited)	25 0 0	8 0 0	25 0 0
600	5	Dungannon	5 0 0	5 0 0	6 0 0
871	5	*Downpatrick*	5 0 0	4 0 0	4 0 0
249	10	Ennis (Limited)	10 0 0		11 0 0
240	25	Galway	25 0 0	10 0 0	35 0 0
		Gorey (L.) £2000			
		Holywood (Lim.)			
	10	Howth (L.) £3500			
		Keady			
600	5	Kells (L.) Meath	5 0 0	6 0 0	5 0 0
600	10	Kilkenny (Limited)	10 0 0	9 0 0	12 10 0
		Killarney (L.)£3000			
		Kilrush			
		Kinsale (L.) £2000.			
210	10	Larne (Limited)	10 0 0	5 0 0	10 0 0
150	10	Letterkenny (Ld.)	10 0 0	6 0 0	11 0 0
		Limerick (see United Gen.)			
500	10	Lisburn (Limited)	10 0 0	10 0 0	15 0 0
300	5	Lismore	5 0 0	3 0 0	
100	5	Do., preference.	3 0 0	5 0 0	
1200	27½	Londonderry	27 10 0	5 3 7	33 0 0
		Longford			
540	10	Lurgan	8 0 0	6 0 0	9 0 0
	1	Maghera (Lim.)			
		Mallow			
2191	1	Maryborough(Ld.)	0 5 0		0 5 0
		Midleton			
770	5	Monaghan (Lim.)	5 0 0	4 10 0	5 16 0
2000	10	Navan	5 0 0	6 0 0	4 0 0
		Nenagh			
1400	5	Newry Conrs. (L.)	5 0 0	10 0 0	8 3 0
450	5	Newtownards	5 0 0	7 0 0	6 5 0
200	10	Newtownlimavady	10 0 0	5 0 0	10 0 0
		Omagh	5 0 0	7 10 0	6 0 0
250	20	Portadown	20 0 0	5 0 0	20 0 0
125	20	Portaferry			
500	10	Queenstown	10 0 0	6 0 0	10 0 0
200	10	Do., new shares.	5 0 0	6 0 0	5 0 0
		Roscommon £2500.			
	5	Roscrea (L.) £2500.			
		Saintfield(L.) £1000			
	5	Skibbern. (L)£3000			
600	10	Sligo	10 0 0	8 0 0	12 10 0
600	5	Do., new shares.	5 0 0	8 0 0	6 5 0
		Tandragee (Lim.)			
	5	Thurles (L.) £2500			
		Tuam (L.) £3000			
540	5	Tullamore	5 0 0	6 0 0	5 0 0
240	5	Tullow	5 0 0	6 0 0	5 0 0
		Warrenpoint £3000			
1600	10	*Waterford*	10 0 0	6 0 0	12 0 0
1200	5	Wexford Consmrs.	5 0 0	10 0 0	8 0 0
300	10	Wicklow (Lim.)	10 0 0	6 0 0	10 0 0
		Airdrie and Coatbridge			
588	1	Alexandria, Dumbartonshire	1 0 0		0 2 6
800	25	Ayr	25 0 0	5 0 0	25 0 0
1460	10	Banbury	10 0 0	3 10 0	9 0 0
		Belper			
9600	25	Birmingham	25 0 0	6 10 0	34 0 0
9600	17½	Do., new shares	3 0 0	6 10 0	
6000	10	Blackburn	10 0 0		
		Boston			
		Bridge of Earn (L) £450			
		Brighton, Hove, and Preston			
8000	25	Bristol	25 0 0	3 2 0	20 to 21
8000	12½	Do., preference	12 10 0	5 0 0	13 2 6
		Broadstairs		4 0 0	
		Brompton and Gillingham			
5000	10	Bury and Radcliffe	10 0 0	2 0 0	10 0 0
1333	15	Do., pref. shares.	15 0 0	10 0 0	31 15 0
1333	18	Do., do.	6 0 0	10 0 0	14 0 0
2000	10	Do., do.	5 0 0	4 0 0	5 0 0
2000	10	Do., do.	1 0 0	4 0 0	5 0 0
3250	10	Cambridge	10 0 0	7 0 0	16 0 0
3250	3	Do.	3 0 0	7 0 0	4 16 0
	Sk.	Cardiff	100 0 0	5 15 0	115 0 0
1500	10	Do.	8 0 0	5 15 0	9 0 0
	10	Charlemb. L. £3000			
55625	Sk.	Cheltenham	100 0 0	5 5 0	120 0 0
687½	25	Do., pref. shares.	25 0 0	4 10 0	25 0 0
		Chepstow			
		Chester			
2485	2	Clay Cross	2 0 0	8 0 0	2 16 0
508	2	Do.	0 10 0		0 14 0
		Colchester			
175	20	Colne, Lancashire	20 0 0	5 0 0	28 0 0
	5	Consett District	4 0 0		4⅞ to 4⅞
		Dartford			
1250	20	Darwen	20 0 0	2 10 0	19 to 19½
1400	5	Deal	5 0 0	7 0 0	6 0 0
1600	25	Derby	25 0 0	10 0 0	55 17 6
400	50	Dudley	50 0 0	1 0 0	20 0 0
250	25	Do., pref. shares	25 0 0	4 10 0	
		Dukinfield			
9500	10	Dundee	10 0 0	7 10 0	15 0 0
5100	10	Do.	10 0 0	6 10 0	13 10 0
2670	5	Dunfermline	5 0 0	2 0 0	2 10 0
	5	Durham	5 0 0		7½ to 7½
		East Barnet Gas and Water			
7360	25	Edinburgh	25 0 0	5 0 0	28 0 0
7360	12½	Do., new shares.	12 10 0	5 10 0	16 0 0
7218	6¼	Do., do. ¼ shares	6 5 0	5 0 0	7 0 0
5581	6¼	Do., do. do.	2 10 0	5 0 0	2 15 0
2000	25	Exeter	25 0 0	6 10 0	42 0 0
		Falmouth			
	2	Fenny Com. L. £600			
		Folkestone			
		Gosport			
	20	Gravesend and Milton	20 0 0	3 0 0	14 to 16
		Great Grimsby (L)			
1000	5	Greenock (Shaw's Gravitation)	50 0 0	7 0 0	68 to 70
		Guiseley, n. Leeds.			
		Harrogate			
		Heywood			
388	10	Horsham (Lim.)	10 0 0	1 0 0	
1500	10	Kilmarnock	10 0 0	2 0 0	8 0 0
3200	25	Leicester	25 0 0	4 10 0	27 10 0
120	25	Lewes	25 0 0	6 0 0	26 0 0
		Limerick			
1080	25	Lincoln	25 0 0	8 0 0	43 10 0
2300	5	Luton	4 0 0		
		—			
		London Comps.—			
47000	10	Berlin	10 0 0	4 10 0	8 to 9
12000	25	Chelsea	25 0 0	5 5 0	28 to 29
975000	Sk.	East London	Stock.	6 0 0	126 to 128
10000	50	Grand Junction	50 0 0	8 0 0	78½ to 79
5840	25	Do., ¼ shares.	25 0 0	8 0 0	39¼ to 39½
2160	25	Do., new ¼ sh.	10 0 0	7 10 0	
2310	100	Kent	100 0 0	6 0 0	129 to 131
1460	100	Lambeth	100 0 0	6 0 0	110 to 115
4120	50	Do., new shares.	50 0 0	6 0 0	51¼ to 53
		New River		441 6 8	£17,400
1560	100	New River London Bge. Annuities	100 0 0	per sh. 2 10 0	55 0 0
	5	N.Mdlsx.L.£30,000			
3036	100	Southwark and Vauxhall	100 0 0	6 0 0	126 to 128
3036	25	Do., do.	25 0 0	6 0 0	31½ to 33½
1296	100	Do., do.	100 0 0	5 0 0	104 to 106
1296	100	Do. (1867)	85 0 0	4 10 0	106 to 108
12168	61	West Middlesex	61 0 0	5 15 0 per sh.	110 0 0
		Do., new shares.	6 2 0	4 0 0	9 to 9¼
		—			
		Liskeard			
		Maidstone			
		Maldon (Lim.)			
		Margate			
		Matlock			
550	10	Neath	9 0 0	4 10 0	10 10 0
310000	Sk.	Newcstl. & Gatshd.	All.	4 10 0	77 to 78
9600	6¼	Do., pref. do.	5 0 0	5 0 0	5¼ to 5¼
135	20	Newport, Carisbrooke	20 0 0	4 10 0	26 0 0
		Newport, Mon.			
		Newry (L.) £6000.			
2000	10	North Cheshire	10 0 0	7 10 0	13 0 0
1581	10	Do.	2 0 0	7 10 0	2 12 0
	10	North Shields	10 0 0		12 to 12½
		Norwich			
3600	50	Nottingham	50 0 0	5 0 0	60 10 0
		Pontypridd (Lim.)			
		Poole District (L.).			
	5	Portland (Lim.)			
8000	10	Portsmouth	10 0 0	6 0 0	
8000	5	Do.	2 10 0	6 0 0	
301	10	Queenstown (L.)	10 0 0	4 0 0	10 0 0
99	10	Do.	2 0 0	4 0 0	2 0 0
100	10	Do., new shares.			
400	5	Ramsey, I. of Man	5 0 0		
1500	10	Ramsgate	10 0 0	6 0 0	13 to 13½
		Reading			
		Rochdale			
		Rothesay(L.)£7000			
		Royston (L.) £2500			
		Saffron Walden (Lim.)			
900	10	St. Alban's	10 0 0	4 0 0	10 0 0
		St. Helen's			
	1	Sanquhar (Lim.)			
		Scarborough			
		Sheffield			
		Shrewsbury			
		Southport			
11184	10	South Staffordshire	10 0 0		11 17 0
2554	10	Do.	5 0 0		
		Spalding			
21000	5	Staffordshire Potteries	5 0 0	6 0 0	7 5 0
1800	12½	Stockton and Middlesboro'	12 10 0	6 0 0	
800	12½	Do., A shares.	12 10 0	6 0 0	
1591	12½	Do., B shares.	7 0 0	6 0 0	
4000	10	Do., C preference	2 0 0	5 0 0	2¾ to 3
		Stow-on-W. £1000			
33200	5	Sunderland and South Shields	5 0 0	9 10 0	9 7 6
		Tintwhistle			
		Tolcross, Lanark			
		Tweedmouth (L.) £500			
		Wakefield			
3000	10	Warrington	10 0 0	9 0 0	14 10 0
5000	3	Do.	1 0 0		2 1 0
		Wellington, Salop.			
		Weston-sup-Mare.			
		Weymouth			
		Winchester Gas and Water			
		Wirral, Cheshire			
20000	5	Wolverhmptn New	5 0 0	4 0 0	5 0 0
		Yeadon (Limited).			
6000	10	York New Co.	10 0 0	5 0 0	11 12 6

GAS-WORKS BELONGING TO PRIVATE INDIVIDUALS.

Those marked * by the purchase of the shares in extinct companies.

Alford.
Ballina.
Beaufort (Brecon).
Beaumaris.
Berkeley.
Billericay.
Bodmin.
Broadbottom.
Bungay.
Burntisland.
Chapel-en-le-Frith.
Chard.
Clare, Suffolk.
Crewe.
Dingwall.
Donnington, Salop.
Eccleshill, near Leeds.
Ellesmere.
Enniscorthy.
Farsley.
Fermoy.
Ferry Hill.
Goole.
Hadleigh.
Halstead.
Harleston.
Harrow-on-the-Hill.
Hayle.
Holt.
Hunmanby.
King's Langley.
Leiston (Suffolk).
Lynn.
Milnrow, nr. Manchester.
Mold Green, nr. Huddersfield.
Mullingar*.
Nantwich*.
Nettlebed.
Newport (Isle of Wight).
New Ross.
Oakham*.
Parsonstown.
Penryn.
Pontypool.
Redditch.
Ripon.
Ross.
Rhyl.
St. Blazey (Cornwall).
St. Ives* (Hunts).
St. Neots*.
Seaham.
Sittingbourne.
Southall, Midlsex.
Stokesley.
Stowmarket.
Thirsk.
Tipperary.
Tiverton*.
Waltham Abbey.
Wem.
Whitby*.
Whitchurch(Salop).

GAS-WORKS BELONGING TO LOCAL BOARDS, MUNICIPAL CORPORATIONS, OR COMMISSIONERS,

Acting under special Acts of Parliament.

Aberavon.
Abergavenny.
Athlone.
Ballinasloe.
Bethesda, Bangor.
Beverley.
Bingley.
Birkenhead.
Blackpool, & Layton with Warbk.
Bollington (Ches.).
Brighouse.
Burnley.
Burton-on-Trent.
Bury (Lanc.).
Carlisle.
Cashel.
Coleraine
Congleton.
Dalton.
Darlington.
Devizes.
Doncaster.
Dundee.
Enniskillen.
Great Malvern.
Greenock.
Halifax.
Haverfordwest.
Heywood.
Highbridge.
Keighley.
Knaresborough.
Leek.
Limerick Corp. Wks.
Lytham (Lanc.).
Macclesfield.
Manchester.
Middlesborough.
Middleton.
Milton (Kent).
Nelson, n. Burnley.
Newton (Lanc.)
Oldham.
Paisley.
Renfrew.
Richmond(Yorks.)
Ripon.
Rochdale.
Rothesay.
St. Mary Church.
Salford.
Southport.
Sowerby Bridge.
Spalding.
Stockport.
Stockton-on-Tees.
Strabane.
Teignmouth.
Tenby.
Tralee.
Trim (Meath).
Tyldesley & Shakerley.
Wallasey.
Walsall.
Wells (Norfolk)
Widnes.
Workington.
Youghall.

WATER-WORKS BELONGING TO PRIVATE INDIVIDUALS.

Campbelltown. Chidwall (Lancaster). Hyde (Cheshire). Knaresborough. Stamford. Windsor & Eton.

WATER-WORKS BELONGING TO LOCAL BOARDS OF HEALTH, MUNICIPAL CORPORATIONS, OR COMMISSIONERS,

Acting under special Acts of Parliament.

Aberdeen.
Abergavenny.
Aberystwith.
Alnwick.
Ashby-de-la-Zouch.
Ashton-under-Lyne.
Baildon, Yorkshire.
Barnsley.
Bath.
Belfast.
Bilston.
Birkenhead.
Bishop's Auckland.
Bolton.
Bradford, Yorkshire.
Brynmaur, Brecon.
Burnley.
Bury St. Edmund's.
Carlisle.
Carmarthen.
Chelmsford.
Chorley.
Cork.
Coventry.
Croydon.
Darlington.
Dartmouth.
Dorchester.
Dover.
Dublin.
Dumfries.
East Stonehouse.
Ely.
Epsom, Surrey.
Fareham, Hants.
Glasgow.
Gloucester.
Greenock.
Halifax.
Hastings and St. Leonard's.
Haverfordwest.
Haworth, Yorkshire.
Huddersfield.
Hull.
Ilfracombe, Devon.
Keighley.
King's Lynn.
Kirkcaldy.
Knighton, Radnor.
Lancaster.
Leamington.
Leeds.
Leek.
Leith.
Liverpool.
Llandilo.
Llanelly.
Lytham.
Macclesfield.
Maidstone.
Manchester.
Merthyr Tydvil.
Montrose.
Nantwich, Cheshire.
Oldham.
Oxford.
Paisley.
Pembroke.
Penrith.
Penzance.
Perth.
Peterhead.
Pontefract.
Poole.
Port Glasgow.
Preston.
Pultneytown, Caithness.
Rotherham.
Rugby.
Salford.
Salisbury.
Sheerness.
Shipley.
Southampton.
Stirling.
Stockport.
Stroud.
Swansea.
Teignmouth.
Torquay.
Tunbridge Wells.
Wallasey.
Warwick.
Welchpool.
West Cowes.
Whitby.
Whitehaven.
Wigan.
Windhill, Yorkshire.
Wirksworth.
Worcester.

Share List of Metropolitan Gas Companies.

Number of Shares issued.	Amount per Share.	Name of Company.	Amount paid up p. Share.	Dividend p. Cent. p. Annum.	Price per Share.
	£		£ s. d.	£ s. d.	£
8000	10	Anglo-Romano	10 0 0	10 0 0	11 — 12
5000	20	Bahia (Limited)	20 0 0	3 0 0	14 — 15
1000	20	Do., preference	20 0 0	10 0 0	23 — 24
750	20	Do., do., redeemable	20 0 0	10 0 0	21 — 22
40000	5	Bombay (Limited)	5 0 0	4 0 0	3⅜ — 4
10000	5	Do., third issue	4 0 0	4 0 0	2⅞ — 3
10000	20	British (Limited) (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton [Potteries], Trowbridge, & Holywell.)	20 0 0	10 0 0	29⅝ — 30⅛
12000	50	*Chartered*	50 0 0	7 0 0	57 — 58
6000	50	Do.	45 0 0	7 0 0	49 — 50
10000	20	*City of London*, A shares	20 0 0	9 0 0	25 — 26
10000	10	Do., B shares	10 0 0	4 0 0	6 — 7
9629	10	Do., new shares	10 0 0	9 0 0	12 — 13
25000	25	City of Moscow (Limited)	25 0 0	nil.	2 — 3
17490	25	*Commercial*	25 0 0	10 0 0	36 — 37
20000	20	Continental Union	20 0 0	5 0 0	17⅛ — 18
5213	20	Do., preference	20 0 0	7 0 0	20 — 20½
5000	10	*Crystal Palace District*	10 0 0	10 0 0	14 — 15
5000	10	Do., preference	10 0 0	6 0 0	12½ — 13
10000	10	Do., new shares	2 10 0	7 0 0	2½ — 3
4000	50	*Equitable*	50 0 0	10 0 0	69 — 70
4000	25	Do., new shares	25 0 0	10 0 0	34½ — 35
23406	10	European (Limited)	10 0 0	11 0 0	15 — 15½
12000	10	Do., new shares (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	11 0 0	7½ — 7¾
20000	10	*Great Central Gas Consumers*	10 0 0	10 0 0	14½ — 15
5000	10	Hong Kong (Limited)	10 0 0	6 0 0	8 — 10
26000	50	*Imperial*	50 0 0	10 0 0	67 — 68
26000	10	Do., new shares	3 0 0	10 0 0	4½ — 4⅝
26000	12½	Do., new shares	3 0 0	7 0 0	3⅛ — 3⅜
1300	100	Do., bonds	£100	10 0 0	175 —180
28000	50	*Imperial Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Stolberg, Toulouse, & Vienna.)	43 15 0	16 0 0	96 — 97
400	100	Imperial Mexican (Limited)	100 0 0	nil.	
200	100	Do., new	100 0 0	nil.	
3000	40	*Independent*	40 0 0	10 0 0	56 — 58
3000	10	Do.	10 0 0	5 0 0	7 — 8
3000	20	Do.	15 0 0	7 10 0	15 — 16
7133	50	*London*	50 0 0	10 0 0	66¼ — 67
5610	25	Do., 1st preference	25 0 0	6 0 0	26 — 28
503	50	Do., 2nd preference	50 0 0	6 0 0	
214	50	Do., 3rd preference	50 0 0	6 0 0	
£18781		Do., 1st preference stock		6 0 0	
£11828		Do., 2nd preference stock		5 0 0	
		Nictharoy, Brazil (Limited)			
12000	5	Malta and Mediterranean (Limited)	5 0 0	5 0 0	3¼ — 4
6000	5	Do., preference	5 0 0	7 0 0	.. — 5
30000	5	Oriental (Calcutta)	5 0 0	10 0 0	7⅛ — 7⅜
30000	5	Do., new shares	1 0 0	10 0 0	1⅛ — 1⅛
10000	5	Ottoman (Limited)	5 0 0	nil.	1⅛ — 2⅛
12500	10	Parà (Limited)	10 0 0	7 10 0	8⅛ — 9
27000	20	*Phœnix*	20 0 0	10 0 0	29 — 30
3600	100	Do., new	35 0 0	7 10 0	37½ — 38
144000	Sk.	Do.	100 0 0	5 0 0	75 — 77
5000	20	*Ratcliff*	20 0 0	10 0 0	25 — 26
	20	Rio de Janeiro (Limited)	20 0 0	10 0 0	24 — 25
6959	5	Singapore (Limited)	5 0 0	4 0 0	
2000	5	Do., preference	5 0 0	7 10 0	
		Shanghai			
4800	50	*South Metropolitan*	50 0 0	10 0 0	71 — 72
4800	12½	Do., new shares	12 10 0	10 0 0	18 — 19
15000	10	*Surrey Consumers*	10 0 0	10 0 0	14½ — 14¾
10000	10	Do., new	6 0 0	10 0 0	8 — 8½
9000	4	United General (Limerick)	4 0 0	5 0 0	2 — 2¼
10000	10	*Victoria Docks*	5 0 0	6 0 0	
1500	10	*Wandsworth and Putney*	10 0 0	10 0 0	10 — 12
2989	10	Do.	10 0 0	7 10 0	
1500	10	Do.	10 0 0	7 10 0	
1819	10	Do.	5 0 0	7 10 0	
20000	10	Western (Limited) A shares	10 0 0	10 0 0	14½ — 15
10000	10	Do., B shares	7 0 0	10 0 0	9½ — 10
10000	10	Do., C shares	7 0 0	10 0 0	9½ — 10
20000	10	Do., D shares	1 0 0	10 0 0	1½ — 2
8000	5	*West Ham*	7 0 0	7 10 0	7¼ — 7¼
6000	5	Do., new shares	7 0 0	7 10 0	
551	10	West London Junction (Limited)	10 0 0	6 0 0	
520	10	Do., preference	10 0 0	6 0 0	

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1¼ in.	2 in.	2¼ in.	3 in	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lb

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle and Middlesboro'.	Wales.	Yorkshire, Derbyshire, and Staffordshire.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Pig Iron, No. 1 (g.m.b.)	3 15 0	2 14 6	2 7 6	3 10 0	3 12 6
1¼ and 2-inch Socket-pipes	7 0 0	5 15 0	5 10 0	6 0 0	7 0 0
2¼ and 3-inch ditto	6 10 0	5 5 0	5 0 0	5 15 0	6 10 0
4 and 5-inch ditto	6 0 0	4 15 0	4 10 0	5 5 0	6 0 0
6 inches and upwards ditto	5 15 0	4 5 0	4 0 0	5 0 0	5 15 0
Retorts, 1st fusion, hot blast	5 10 0	4 10 0	4 5 0	5 0 0	5 10 0
Ditto, 2nd ditto, cold ditto	6 10 0	—	—	—	6 10 0
Tank-plates, ¼ thick and above	6 0 0	5 0 0	4 15 0	5 10 0	6 0 0

WROUGHT-IRON TUBING,

Subject to 50 per cent. Discount.

	2 in.	1¼ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 14 feet—per foot	1 8	1 1	0 10	0 7	0 5	0 4½
Ditto ditto, from 15 in. to 23½ in.—each	3 0	2 0	1 6	1 1	0 9	0 8
Long Screws, from 12 in. upwards	4 0	2 3	2 0	1 6	1 2	0 11
Bends and Springs	4 3	2 3	1 9	1 3	0 11	0 8
Square Elbows, equal or reducing; Round Elbows, 5 per cent. extra	3 9	2 3	1 9	1 3	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 9
Crosses, ditto, equal or reducing	4 9	3 6	3 0	2 3	1 9	1 6
Iron Cocks	20 9	13 0	10 0	7 3	5 0	3 8
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Nipples	1 3	0 9	0 8	0 6	0 5	0 4½
Plain Sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 2-quart	15 0	14 0	13 6	13 0	12 0	—

GAS COALS.—*Per Ton.*

Newcastle.—Unscreened:—

Haswells, Nettlesworth Primrose, and South Pelaw	6s. 6d.
Felling, Framwell Gate, North Pelton, Redheugh Main, Walker's Primrose, West Wear, and Whitwell Primrose	6 9
Burnhope, Craghead, Charlaw, Derwent, East Castle, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Lanchester Pelaw, Medomsley, Mickley, New Pelaw, Pelaw Main, Ravensworth, Sesham, South Moor Pelton, South Leverson, Townley Main, Tyne Main, West Pelaw, Wearmouth Hutton, and Witton	7 0
Peareth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton	7 3
Brancepeth, Dean's Primrose, Londonderry Gas, New Pelton, Pelton, South Peareth, Stella, Urpeth, Washington Hutton, and West Leverson	7 6
Ramsay's Newcastle Cannel	15 0
Wigan Cannel (at Liverpool)	17 0
Scotch Cannel:—	
Boghead (at Leith)	42 6
Muirkirk	27 0
Kirkness, best (at Burntisland)	28 6
Capeldrae, 1st quality (at ditto)	28 6
Ditto, 2nd ditto (at ditto)	18 6
Cowdenbeath	12 0
Lesmahago (at Glasgow)	31 6
Ditto (at Granton)	32 6
Arniston	27 6
Wemyss, Lo.b.	22 6
Haywood, Wilsontown (at Granton)	23 0
Pirnie, or Methill	17 0
Lothian's Cannel (f.o.b. at Leith)	26 0
Bo'ness Cannel (at Bo'ness)	19 0
Myles' Cannel	23 6
Lochore Parrot (at Burntisland)	28 0
Lanemark (at Glasgow)	16 0
Elphinstone Tower (at Leith)	20 0
Coppa Cannel (on railsat Birkenhd.)	14 9
Ditto ditto (ditto at Connah's Quay)	14 3

FREIGHTS.

Coastwise—Newcastle.—Per Ton:—

Chatham and Rochester	6s. 6d. to 7 0
Cork	8s. 6d. to 9 0
Dover, Folkestne, & Ramsgate	6 6
Dublin	9s. 6d. to 10 0
Exeter Quay	8s. 6d. to 9 0
Ipswich	4 6
London (from Leith)	8s. 1d. to 9 0
London (Pool)	8s. 1½d. to 6 3
Lowestoft and Yarmouth	5 0
Portsmouth & Southampton	6 9
Plymouth	8 3
Shoreham	7 0
Whitstable	6 0
Weymouth	7 6
Foreign.—Per Keel:—	
Barcelona	£17 0
Bordeaux	13 0
Boulogne and Calais	47 to 7 4
Cadiz	13 0
Cronstadt	—
Copenhagen	9 10
Genoa	17 0
Hamburg	—
Havre de Grace	10 0
Leghorn	17 0
Lisbon	11 10
Rotterdam	—
Stettin	9 0
Trieste	15 0
Venice	18 0

SUNDRIES.

Best Nstle. Fire-bks., p. 1000, £2 10s. to	£2 15 0
Cliff's Fire-bks. (at Wortley), p. 1000	2 15 6
Ingham's ditto (at Wortley), p. 1000	2 15 0
Farnley Iron Co.'s Fire-bks. (at Wortley), less discount	2 17 0
Fire-clay Retorts, p. ft. run, 8s. 6d. to	0 7 0
Tough Cake Copper, p. ton	79 0 0
English Pig Lead, p. ton	19 0 0
Welsh Bar Iron (in London), p. ton	6 13 6
Foreign Spelter, p. ton	20 10 0
English Block Tin, p. ton	110 0 0
Bancs, p. ton	108 0 0
Tarred Rope Yarn, p. cwt.	1 0 0

PRIVATE STREET BARS.—By the Metropolis Local Management Act, section 107, no street bars or gates for preventing the passage of vehicles are to be removed without the consent of the proprietor of the estate on which such barriers are placed. There are upwards of 160 thoroughfares in the metropolis containing such obstructions to traffic. The vestry of St. George's, Hanover Square, have resolved to give notice to the parties concerned that on and after the 1st of January next they will discontinue to light the lamps in those public thoroughfares in which such gates, bars, or other obstructions are placed. The St. James's vestry have, it is understood, adopted a resolution to the same effect.

THE SOLAR HEAT.—M. Mouchat, who has been experimenting on the utilization of the solar heat, last week sent in a paper on this subject to the Academy of Sciences. He states that, according to his experiments, upwards of three-sixths of the solar heat might be gathered at a small cost. At Paris, a surface of one square mètre normally exposed to the rays of the sun receives, on an average, at any time of the year, on a fine day, ten units of caloric per minute. Such a quantity of heat would make a litre of water at freezing point boil in ten minutes, and is equivalent to the theoretical action of a one-horse power. He further states that he had proved the possibility of keeping hot-air machines going by means of solar rays, and had succeeded in making a few litres of water boil by exposure to the same agent; and in June, 1866, he had made a small steam-engine work by converting water into vapour with the assistance of a reflector one mètre square.

IMPROVEMENTS IN PILLAR LAMPS.—We are glad to observe that there is a disposition on the part of district boards to improve the character of our street lamp-posts and lamps. Those lately erected in Piccadilly make it evident that something is being done in this matter, and we think that the bronzed pillar near Apsley House bears testimony to the fact that lamp-posts may not only be made useful, but an ornament to our thoroughfares. We observe that this pillar and lamp have been supplied by Messrs. Turner and Allen, of Upper Thames Street, who, we believe, make a speciality of this branch of their business.

NEW GAS-WORKS IN BEDFORDSHIRE.—The villages of Aspley Guise and Woburn Sands have recently been lighted with gas. A local company was organized for the purpose, and registered on the 28th of August last, and, after some delay in securing a suitable site, the works were commenced in the following month by Messrs. W. C. Holmes and Co., of Huddersfield and London, who finished them in time to allow the various houses to be lighted with gas by Christmas. It is proposed to celebrate the event by a public dinner on the 11th inst.

AVERAGE COMPOSITION AND QUALITY OF THE METROPOLITAN WATERS IN DECEMBER, 1868.—The following are the returns of the Metropolitan Association of Medical Officers of Health:—

NAMES OF WATER COMPANIES.	Total Solid Matter per Gallon.	Oxygen required by Organic Matter, &c.	Nitrogen.		Hardness.	
			As Nitrates, &c.	As Ammonia.	Before Boiling.	After Boiling.
Thames Water Comps.	Grs.	Grs.	Grs.	Grs.	Degs.	Degs.
Grand Junction	22·77	0·130	0·174	0·002	15·8	4·1
West Middlesex	20·97	0·027	0·156	0·003	14·6	3·3
Southwark and Vauxhall	22·53	0·072	0·180	0·001	14·9	4·5
Chelsea	26·13	0·400	0·165	0·004	16·1	6·4
Lambeth	22·43	0·109	0·186	0·001	15·0	4·2
Other Companies.						
Kent	27·67	0·018	0·264	0·004	18·6	5·6
New River	19·67	0·027	0·174	0·002	14·0	3·5
East London	21·07	0·036	0·135	0·003	14·7	3·2

Note.—The amount of oxygen required to oxidize the organic matter, nitrites, &c., is determined by a standard solution of permanganate of potash acting for three hours; and, in the case of the metropolitan waters, the quantity of organic matter is about eight times the amount of oxygen required by it.

All the samples were clear when drawn from the companies mains, excepting the Chelsea water, which was turbid. H. LETHEBY, M.B.

Advertisements.

C. A. S. VICKARY,

(ADMINISTRATRIX TO THE LATE JOHN VICKARY,)

GAS ENGINEER AND CONTRACTOR, IRON AND BRASS FOUNDER,

EXE ISLAND, EXETER,

Tenders her best thanks to the various Gas Companies in **England, Ireland, and Wales,** for the very liberal and kind support received by her lamented husband for the last **22 years,** during which period he erected and extended more than **200 Gas-Works.** She respectfully solicits a continuation of that support, and begs reference to the following testimonial:—

Plymouth and Stonehouse Gaslight Company.

Sir,—I have much pleasure in testifying that the 100-foot Telescope Gasholder and Cast-Iron Tank, erected by you for this Company in 1862, has given the highest satisfaction, and never required the slightest alteration or adjustment since its completion.

Mr. John Vickary. (Signed) PETER ADAMS, Chairman.

The late Mr. Vickary also erected a 100-foot Gasholder and Cast-Iron Tank at **Exeter;** an 80-foot Telescope Gasholder and Iron Tank at **Devonport;** a 90-foot at **Torquay,** &c., &c. At either of these works satisfactory references can be made.

C. A. S. V. begs particular attention to her **Improved Gas-Meters,** both **Wet and Dry,** the materials and workmanship of which are guaranteed of the very best description, and which have gained for her Meters so excellent a reputation.

RETORTS, DIP & ASCENSION PIPES, HYDRAULIC MAIN, CONDENSERS, PURIFIERS, STATION-METERS, GOVERNORS, VALVES, and GASHOLDERS,

Of any size, and every description of article required in Gas-Works supplied.

Mains, Tees, Connexions, and Syphons, from 2 to 12 in., always in stock, and supplied at Scotch prices.
Clay Retorts and Fire-Goods of every description.
Chandeliers and Gas-Fittings of the most modern designs.
Iron Pipe and Fittings, Service Cocks, &c.

Plans, Specifications, and Estimates for the Erection of New Gas-Works of any size furnished.

LIVESEY FIRE-CLAY WORKS,

NEAR BLACKBURN, LANCASHIRE.

ORLANDO BROTHERS,

MANUFACTURER OF PATENT CLAY RETORTS,

AND EVERY DESCRIPTION OF

TUBULAR GLAZED SEWERAGE PIPES, BENDS, JUNCTIONS, ETC.

FIRE-BRICKS, TILES, BLOCKS, AND CHIMNEY-TOPS.

BOROUGH OF STOCKTON.

WANTED, a practical Manager, for the Corporation Gas-Works at Stockton. The person appointed will be required to enter upon his duties on or about the 1st day of February next. A good residence is provided at the works, and coals and gas found. First-class testimonials as to character and competency will be required.

Applications, with testimonials and statement of experience and amount of salary required, to be forwarded to me, not later than the 15th day of January next.

H. G. FABER,
Town-Clerk, Stockton-on-Tees.

Stockton, Dec. 31, 1868.

TO GAS ENGINEERS, GAS COMPANIES, AND CONTRACTORS.

WANTED, by a respectable, active, middle-aged Man, EMPLOYMENT of any kind (not menial) in or about a Gas-Work. Is a thoroughly practical man, well experienced in every department; in retort-setting, main-laying, the general routine of making and supply, meters, testing, &c. Has had the management of provincial works, but has for some few years been engaged in the erection of extensive Gas-Works and lighting up towns under well-known gas engineers, to whom he will refer. Is a good draughtsman and accountant, and will make himself generally useful. Is perfectly sober, and seeks some settled permanent employment. Requires but small remuneration. Country preferred. Has first-class testimonials, and will be disengaged after the 13th inst.

Address Y. Z., 288, Oxford Street, LONDON.

MAIDSTONE GAS-WORKS.

WANTED, a Storekeeper and Yard FOREMAN. Persons accustomed to gas-works, willing to take the above situation, are requested to send applications, stating age, &c., with testimonials, to Messrs. Beale and Hoar, Maidstone, on or before Wednesday, the 13th of January, 1869.

Salary 30s. a week, and a house on the works. Rent, rates, and taxes free, with gas and coals found.

BEALE AND HOAR,
Clerks to the Maidstone Gas Company.

Maidstone, Dec. 29, 1868.

TO GAS COMPANIES.

WANTED, an engagement as Contractor, Manager, or Working Manager in a gas-work making from 2,000,000 to 10,000,000 per annum. The Advertiser has had 13 years experience as Contractor and Working Manager in his present situation, and is thoroughly competent to set retorts, lay mains and service-pipes, do gas-fittings, take meters, keep accounts, and can produce first-class testimonials.

Address JOHN TAYLOR, Contractor and Manager, Gas-Works, Bethesda, Bangor, NORTH WALES.

TO LESSEES OF GAS-WORKS AND GAS ENGINEERS.

TURNOVER Pupil, age 18, useful and willing. One year expired, two years to run. To reside in the house. A premium will be given.

Address A. PERRY, DARTFORD.

TO GAS COMPANIES.

FOR SALE, a Beales Gas Exhauster, 3 ft. diameter by 2 1-6th ft. long, square out and inlets 10 in. by 10 in. Has been a few years in use. Is sold because replaced by a larger one. Coupled shaft and cog-wheel may be had with it.

Application to be made to W. ESSON, Engineer, Gas-Works, CHELTENHAM.

Jan. 1, 1869.

DRY GAS-METERS.

BANGOR LOCAL BOARD OF HEALTH.

TO BE SOLD, for a trifle, 98 Patent 1-Light DRY GAS-METERS. Maker, Thomas Glover, Clerkenwell.

Apply at the Office of the Board, Bangor, N. WALES.

CROYDON COMMERCIAL GAS & COKE COMPANY.

TO BE SOLD, in consequence of the completion of the Company's new works:—

Two of Burton and Co.'s Vertical ENGINES, 5-horse nominal power, and 2 of Beales's EXHAUSTERS, for 10,000 ft. each per hour, in good working condition.

A Cast-Iron TANK, 30 ft. diameter, 15 ft. deep, with columns, inlet and outlet pipes, valves, &c.

A CONDENSER BOX, 24 ft. by 6 ft. by 8 ft. 6 in., with 28 8-in. pipes, &c., complete.

A GOVERNOR complete, with delivery-box, 3 valves, and connexions complete.

Miscellaneous Castings, Valves, &c.

Applications to be made to the Secretary, 23, George Street, Croydon. WILLIAM PURVIS, Secretary.

Nov. 1868.

TO GAS-WORKS CONTRACTORS, IRON-FOUNDERS, BUILDERS, &c.

THE St. Mary Church Local Board invite TENDERS for their intended NEW GAS-WORKS, to be erected in the Barton Road, in the district of St. Mary Church, near Torquay, Devon.

Plans and specifications of the proposed works may be seen, and copies and forms of tenders obtained, at the St. Mary Church Board-Room, on and after the 1st of January, 1869. Sealed tenders (for the whole, or separate tenders for the gas engineering and building departments, as set forth in the specifications), addressed to "The Chairman of the St. Mary Church Local Board," and endorsed "Tenders for the intended St. Mary Church Gas-Works," are to be delivered on or before Twelve o'clock at noon, on Thursday, the 21st of January, 1869.

The Board do not bind themselves to accept the lowest or any tender.—By order,

GRANT WOLLEN, Clerk to the Local Board.

Dated St. Mary Church, Torquay, Devon, Dec. 22, 1868.

EAST BARNET GAS AND WATER COMPANY.
(Incorporated by Act of Parliament.)

OFFICE—ALBERT ROAD, EAST BARNET, HERTS.

NOTICE is hereby given that at a Meeting of the Board of Directors of this Company, held on the 15th inst., a last CALL of £2 per Share was made, payable on or before the 25th day of January, 1869, at Messrs. Glyn, Mills, Currie, and Co., Lombard Street, the Bankers of the Company.

WM. C. HUMPHRYS, Secretary.

Dec. 20, 1868.

THE Redhill Gas Company are desirous of receiving TENDERS for the TAR made at their works during the year 1869.

Persons tendering must state price per 100 gallons, delivered in their own casks at the railway station, Redhill, and must undertake to remove it when called upon by the Company.

Tenders to be sent in on or before the 9th inst., addressed to the Secretary, at the Office of the Company, Town Hall, Redhill, Surrey.

JOHN METHVEN,
Secretary and Manager.

LINTZ COLLIERY COMPANY.

FIRE-BRICK AND RETORT WORKS.

THE LINTZ COLLIERY COMPANY

Beg most respectfully to draw the attention of

GAS COMPANIES, FURNACE BUILDERS, FIRE-BRICK DEALERS, & OTHERS,

To the superiority of their

FIRE-CLAY GOODS,

Where resistance to heat is of paramount importance, an ample guarantee of which is in the fact of their extensive use by most of the Iron Manufacturers in the North of England.

Not only is the quality of the Fire-Clay inferior to none in the northern Coal-field, but the greatest care is taken in selecting it. It is all hand picked, and well weathered before use.

All orders for

FIRE-CLAY RETORTS of any shape or size, FIRE BRICKS, &c.,

Will meet with prompt attention.

LAYCOCK'S GARESFIELD COKE.

OFFICES: LINTZ COLLIERY, BURNOPFIELD, Co. DURHAM; AND QUAYSIDE, NEWCASTLE-ON-TYNE.

TURNER & ALLEN'S

NEW DESIGNS

FOR

Plain & Ornamental

LAMP-POSTS,

DWARF

GAS PILLARS,

LAMP BRACKETS,

LAMPS,

LANTERNS, &c.

GASELIERS,

CORRIDOR AND LOBBY

LAMPS,

GARDEN

AND

DRINKING FOUNTAINS.

COMPLETE PATTERN AND PRICE BOOK, 3s. 6d. in stamps.

TURNER AND ALLEN,

Engineers, Founders, &c.,

201, UPPER THAMES STREET, LONDON, E.C.

NINETEEN YEARS PRACTICAL EXPERIENCE.

EDWIN BENTLEY,

RETORT SETTER,

29, LOWER HOPE STREET, HALIFAX,

YORKSHIRE.

Fire-Clay and Iron Retorts, Double and Single Grooved Brick Retorts, of every description.

Bentley's Improved D Brick Segment Retorts, 5 or 3 in one bed.

Testimonials and references on application.

TO GAS ENGINEERS AND FITTERS.

Every Description of

GAS LANTERNS & REFLECTOR LAMPS

For Shop Windows kept in Stock.

W. DAVIS, 17, Wells Street, Oxford Street, LONDON, W.

Established 1820.

Mr. H. GORE,

CONSULTING GAS ENGINEER,

20, ALFRED PLACE, BEDFORD SQUARE, LONDON, W.C.

CANNEL COAL.—The West Yorkshire Iron and Coal Company, Limited, beg to draw the attention of Gas Companies to their Cannel, of which the following is the analysis made by W. Huggon, Esq., F.C.S.:—

Yield of gas per ton	10,296 cubic feet.
Illuminating power rather over	21 sperm candles.
Yield of coke per ton	12 cwt.

The actual working, as reported by one of the largest gas companies in Yorkshire, gives results still more favourable, viz—

Yield of gas	10,416 cubic feet.
Illuminating power	21·89 sperm candles.
Coke	The same.

We add from the same source the capabilities of the common gas coal—

Yield of gas	10,080 cubic feet.
Illuminating power	14·41 sperm candles.
Yield of Coke	13 cwt.

COLLIERIES—WEST ARDSLEY, near LEEDS.

For further particulars, address to the Office of the Company, 15, York Place, LEEDS.

POPE & PEARSON'S GAS COAL. We have now the authority of several of the most eminent Gas Engineers of London in stating that our Coal yields *in practical working over* 10,000 *cubic feet of gas, with an illuminating power of* 16 *candles.*

One ton yields 12½ cwt. of good coke. This Coal can be shipped from Hull, Goole, Liverpool, Morecambe, and Barrow.

For further particulars, apply to POPE AND PEARSON, West Riding and Silkstone Collieries, near LEEDS.

OLD WEMYSS CANNEL COAL.—Yield of gas per ton, 12,896 cubic feet; illuminating power, 31·75 standard candles. Port of shipment, Wemyss.

Analysis and price on application to Mr. WM. CAREY, Manager, Wemyss Colliery, Kirkcaldy, FIFE.

SWANWICK CANNEL COAL. Illuminating power 23·98 candles; yield large, and coke good.

Analyses by W. Valentin, Esq., of the Royal College of Chemistry, London, and William Fiddes, Esq., F.C.S., Gas-Works, Bristol, with price and terms, forwarded on application to H. BOAM, Head Office, 1, Darwin Terrace, DERBY.

CANNEL COAL.

MESSRS. GRIFFITHS BROTHERS, COPPA COLLIERY, MOLD,

Beg leave to call the attention of Gas Companies to the superior quality of their Cannel for gas-making purposes.

This Cannel produces in actual working, in iron retorts, 9200 cubic feet of 32-candle gas, and upwards of 11 cwt. of coke, and in clay retorts will produce 11,500 cubic feet of 25·9-candle gas.

Ports of shipment—Birkenhead or Connah's Quay.

Waggons supplied for delivery by railway to any part of England or Wales.

For particulars, prices, and rates of freight, apply to GRIFFITHS BROTHERS, Coppa Colliery, Mold, FLINTSHIRE.

CATHELS'S Patent Dry District GOVERNOR is the only perfect self-acting contrivance for regulating the pressures in the higher levels of a district.

CATHELS'S Patent Four-way Disc GAS-VALVE—ONE OF WHICH SERVES AS THREE ORDINARY VALVES—is the best Valve for gas-works.

For prices, &c., apply to the Manufacturers, Messrs. GUEST AND CHRIMES, ROTHERHAM.

CATHELS'S Patent Ribbed Gas Main- PIPES cost but about 1d. to 2d. per yard (depending on the size) more than Plain Pipes, and ensure PERFECT GAS-TIGHT CONNEXIONS with the Service-Pipes.

Apply to Messrs. BEGGS & SON, 37, Southampton Street, Strand, LONDON.

ROBERT MACLAREN and CO., EGLINTON FOUNDRY, GLASGOW, Manufacturers of all sizes of Cast-Iron Main Pipes, by an improved Patent. General Ironfounders, Gas Engineers, and Wrought-Iron Tube Makers.

NATURAL

HYDRATED OXIDE of IRON constantly on Sale. Apply to

MARTYN DENNIS AND CO.,
LIVERPOOL.

W. J. SIMMONDS,

Retort and Boiler Setter and Contractor for Gas-Works in general,

7B, SOUTH STREET, NEW NORTH ROAD,
ISLINGTON, LONDON, N.

Upwards of 16 years Retort Setter to the Chartered Gas Company, Brick Lane and Curtain Road Stations.

Materials supplied on reasonable terms if required, or labour only.

No connexion with any other Retort Setter.

N.B.—Orders to be addressed as above.

F. SIMMONDS, Senr.,

221, KINGSLAND ROAD,

RETORT & BOILER SETTER

For the Chartered Gaslight Company, Brick Lane and Curtain Road Stations, and numerous Gaslight Companies, London and Provincial.

NO CONNEXION WITH ANY OTHER RETORT SETTER.

Estimates given with or without materials.

JOHN WRIGHT,

30, BROAD STREET, ISLINGTON, BIRMINGHAM,

MANUFACTURER OF

Registered Gas-Burners, by which £6 is saved in every £10 worth of Gas consumed;

Registered Radiating Gas-Stoves;
Registered Flat Irons;
Improved Atmospheric Gas-Stoves;
Gas Broilers, Toasters, and Roasters;
Improved Nursery Brackets;
Opal Reflectors;
Improved Smoke Consumers;
Glass Commode Knobs, &c., &c.

JOHN WRIGHT respectfully informs the trade that he supplies every article, either direct or through Merchants and Factors, at 32½ per cent. from List, except Gas-Burners, which are subject to 50 per cent. discount.

This REGISTERED RADIATING GAS-STOVE

Is constructed on scientific principles, and gives out great heat by the perfect combustion of a small quantity of Gas, avoiding both smell and smoke.

It can be fixed in any room by drawing the flexible Tube over the gas nipple of an ordinary burner, which supplies sufficient gas for the smallest size.

Where the Stove is required permanently, it is desirable to have a Cock and Nozzle inserted in the gas-pipe.

These can be supplied with the Stove, and are the only fittings required for even the largest size.

The following are distinguishing advantages of this Stove:—

It is portable, and can be removed from room to room or from one part of a room or office to another.
It is ornamental and effective.
It is cheap, both in first cost and in daily use.
It requires scarcely any fixing; and
There is POSITIVELY NO SMELL.

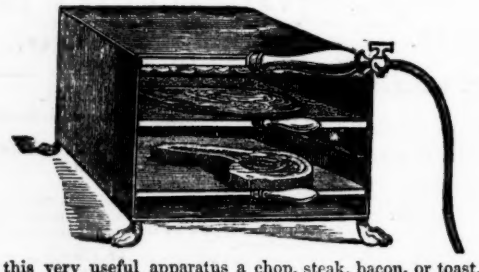
PRICES.

		s.	d.
No. 210 Stove,	21 in. high	12	6
„ 212 „	26 in. „	17	6
„ 214 „	32 in. „	25	0
„ 216 „	40 in. „	42	0
„ 218 „	48 in. „	63	0
Cock and Nozzle for ditto, extra		1	6
12 feet of Prepared Tube for ditto		4	0

Extract from the "ESSEX WEEKLY NEWS," of January 31st, 1868.

HEATING THE CHURCH WITH GAS.—On Friday, the 10th inst., a preliminary meeting was held at Thaxted, by the churchmen of the parish, for considering the expediency of heating the parish church with gas, and after a friendly discussion it was unanimously agreed that it should be done. This meeting was followed up by a second, which was held on Tuesday, the 14th inst., for the purpose of considering the plans and estimates of the proposed works. The Rev. G. E. Symonds, the esteemed vicar of the parish, took the chair, and Messrs. Joseph Scruby and Taylor Leeder, the churchwardens, and the principal parishioners were present. After minutely inspecting and fairly discussing the various plans and estimates submitted, the meeting selected those forwarded by Mr. O. E. Ratcliff, plumber and gas-fitter, of Thaxted, and that gentleman was appointed to execute the order for the whole of the works connected with the heating apparatus. *This consists of a simple yet admirable arrangement—twelve of WRIGHT'S REGISTERED RADIATING GAS-STOVES,* supplied by the eminent and well-known firm of Messrs. Hulett and Co., gas-fitters, &c., of London, have been erected. Four of these are in the nave, and four in each of the side-aisles. Each stove is three feet high, and of light and elegant proportions. The mains are laid under the pavement, and are of such proportions as to answer every requirement. The whole of the work was so far advanced as to admit of a preliminary trial on Thursday, the 23rd inst., which was very satisfactory. The works were completed on Saturday, and on Sunday last the church was heated for the first time by the new apparatus. There was not a single escape in any part of the works, and the congregation present confessed it a perfect success. The temperature was tested by a thermometer on Sunday morning before the gas was lighted, and was found to be 48 degrees, and at the commencement of the service the temperature had risen to 59 degrees, which was found to be very comfortable, and the gas was turned off from four stoves, and the other eight were turned very low. This church, it must be borne in mind, is unusually large and lofty, the interior dimensions being 166 feet long, by 70 feet in width, and 40 feet in height with a flat roof, yet, notwithstanding the many thousands cubic feet these figures comprehend, the temperature was easily kept up (as stated above) to 58 degrees, and was as warm and comfortable as a snug room. *The successful experiment of heating this large building goes much in favour of the stoves used, and we understand that all who use them, properly fixed, can find nothing better, and there is no smell after the stoves are seasoned.*

WRIGHT'S IMPROVED
GAS BROILER & TOASTER.



By this very useful apparatus a chop, steak, bacon, or toast, and even a fowl or small joint may be roasted more readily and economically than by any open fire.

The Gas being above the gridiron or pan, no taste of Gas is possible, and it is universally admitted that for Toasting, Broiling, or Roasting, reflection is the best method.

By the Cock the flame can be regulated to any required heat.

No. 1 . . . 12s. 6d. | No. 2 . . . 17s. 6d.

LACQUERED & BRONZED.

3½-inch . . .	1s. 4d. each.
4¼ „ . . .	1 6 „
4¾ „ . . .	1 9 „

If with Enamelled Top, White or Florentine, 6d. each extra.

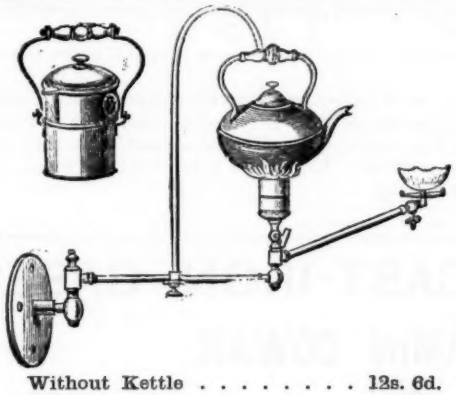
WRIGHT'S IMPROVED
TERRA COTTA STOVE.

This Stove is fitted with Bunsen's Burner and Wright's Improved Radiating Plate. It throws out more heat than any other Terra Cotta Stove that has yet been introduced.

Price 25s. each.

Cock and Nozzle for ditto. . . 1s. 6d.
12 ft. Prepared Tube for ditto. 4s. 0d.

IMPROVED
NURSERY & BEDCHAMBER BRACKET.



Without Kettle	12s. 6d.
Kettle	1 9
Best Bright do.	3 6
Panakin for do.	2 6

WRIGHT'S PATENT FILLER,
For Water-Slide Chandeliers.

This Patent Filler enables the Chandelier to be replenished with ease, and without any possibility of spilling the water.

The neglect to keep Chandeliers filled has occasioned serious accidents; the difficulty, and certainty of the water being spilled, frequently leads to this neglect.

If the Spout be inserted in the Chandelier, the water rising to the Spout stops the flow, and no more than is required can be poured in.

Price 2s. each.

WRIGHT'S IMPROVED OPAL REFLECTOR.

7-in. White Opal	6s. 6d.	Green	8s. 0d. each.
8½-in. „	„ 8 6	Do.	10 6 „

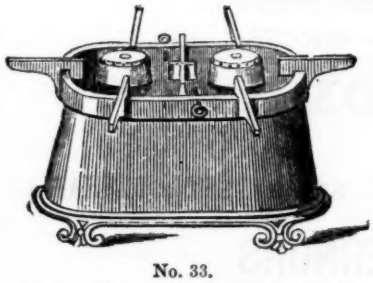
WRIGHT'S ATMOSPHERIC GAS-STOVES.

No. 12—Bronzed, 1s. 6d.

No. 20—Brass Registered Stove, well finished, 8s. 6d.

6 feet Prepared India-Rubber Tube for ditto, 1s. 6d.

WRIGHT'S IMPROVED ATMOSPHERIC GAS-STOVES,
With Improved and very effective Burners.



No. 33.

No. 33—Is a strong serviceable Stove, with two Burners, and will boil a large iron pot in less time than an ordinary open fire.

Price 10s. 6d.

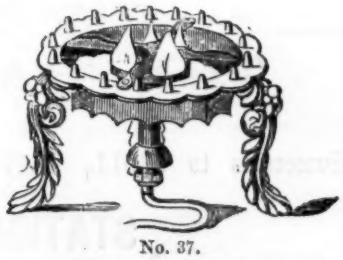
12 feet prepared Tube for ditto, 4s.
Cock and Nozzle for ditto, 1s. 6d.

No. 35.

No. 35—Is a smaller, but very strong Stove, and will boil an iron saucepan up to 8 quarts.

Price 3s. 6d.

6 feet prepared Tube for ditto, 2s.



No. 37.

No. 37—Has one large Burner, and is a most effective Stove. It will boil 4 gallons of water very quickly.

Price 7s. 6d.

12 feet prepared Tube for ditto, 4s.
Cock and Nozzle for ditto, 1s. 6d.

All the above are well adapted for making Preserves, as the heat can be regulated to the greatest nicety.

JOHN WRIGHT,
30, BROAD STREET, ISLINGTON, BIRMINGHAM.

FOR SALE,

SECOND-HAND STATION-METERS AND GOVERNORS,

As under, all in excellent Working Order, equal to New, guaranteed.

STATION-METERS.

2,000 Cubic Feet per hour, 4-in. Connexions.	8,000 Cubic Feet per hour, 8-in. Connexions.
5,000 „ „ 8-in. „	12,000 „ „ 10-in. „
6,000 „ „ 8-in. „	

STATION GOVERNORS for 2, 5, 6, and 12 inch Mains.

APPLY FOR FURTHER PARTICULARS TO

GEORGE RAIT, MANAGING DIRECTOR,

GAS-METER COMPANY, 238, KINGSLAND ROAD, LONDON, N.E.

EDWARD COCKEY & SONS,

IRON-WORKS, FROME SELWOOD,

PATENT GAS-VALVES.

A PRIZE MEDAL

WAS AWARDED TO THE PATENTEES AT THE INTERNATIONAL EXHIBITION OF 1862.

These Valves are formed of two cylinders, working one on the other horizontally, having their faces ground perfectly gas-tight.

They are adapted either as central valves, for two, three, or four purifiers—as bye-passes—or as inlet and outlet-valves for gasholders.

They have been fixed in some of the most important Gas-Works in the Kingdom, for more than eight years. Considerably over two hundred of them are now in use, and the most satisfactory reports of their advantages continue to be received. They are simple in construction, and not liable to get out of repair, and if in course of time the faces should leak, they can be easily re-ground and made as tight as ever, without removal from their positions. Each Valve is fitted with an index, which shows to the person in charge of the Works in what direction the gas is passing.

Frome, January 20, 1866.

DRY GAS-METERS IN CAST-IRON CASES,

MANUFACTURED BY

WILLIAM AND BENJAMIN COWAN,

(ESTABLISHED 1827,)

BUCCLEUCH STREET WORKS, EDINBURGH,

Possess a simplicity of construction and facility for repair greater than any yet produced, while the excellence of the material and workmanship, and accuracy of registration, cannot be surpassed. The superiority of their Dry Meters in Tin Cases is also well known.

SOLE MANUFACTURERS OF

ESSON'S PATENT COMPENSATING GAS-METERS.

COWAN'S PATENT SIDE-VALVE GAS-METERS.

THE GAS-METER COMPANY

(LIMITED), LONDON,

(Successors to CROLL, RAIT, and CO., LONDON, and WEST and GREGSON, OLDHAM.)

MANUFACTURE

STATION-METERS & GOVERNORS

At their Oldham Establishment, which has long possessed the reputation of supplying this description of apparatus of the most perfect construction and appropriate design.

CONSUMERS GAS-METERS IN CAST-IRON & TINNED SHEET-IRON CASES.

STREET GOVERNORS, PRESSURE and EXHAUST REGISTERS, TEST GASHOLDERS,

AND EXPERIMENTAL GAS APPARATUS GENERALLY.

For information, &c., apply to

W. ARCHER, Manager, Meter Factory, OLDHAM;

OR TO

GEORGE RAIT, Managing Director, KINGSLAND ROAD, LONDON.

EDGE'S AMERICAN PATENT METHOD
FOR
SCURFING RETORTS.

The above improved method having been found to be the most efficacious, expeditious, and economical of any plan at present employed for the removal of the Incrustation from the interior of Retorts, arrangements have been made with the Patentee for working the patent in this country. Particulars and Terms for Licences may be had on application to

E. GODDARD, GAS-WORKS, IPSWICH,

Where the process may be seen in full operation.

ECONOMY IN GAS PURIFICATION.

Mc DOUGALLS'

HYDRATED PEROXIDE OF IRON.

This Oxide is now well known, and has gained at a number of the largest gas-works at home and abroad a decided preference for efficiency and durability. It is free from any mixture of sawdust or other material, every particle being available for use, thus causing the Purifiers to work double the time before it requires renewing, and saves one-third the cost of labour in charging them. It readily takes up sulphur, revivifies rapidly, and lasts longer than any other Oxide in the market. Prices on application to—

Mc DOUGALL BROTHERS, Manufacturing Chemists,

LONDON—11, Arthur Street West, London Bridge, E.C.; MANCHESTER—Riga Street, Shudehill.

BEST AND HOLDEN'S

PATENTS FOR CHARGING AND DRAWING GAS-RETORTS,

WITH CHAMBERS FOR MOUTHS,

REQUIRING NO LUTING.

Gas Engineers are solicited to examine into the merits of this invention before erecting new or altering old retort-houses. It may be seen in action at the Alliance Gas Company's Works, Dublin, where its utility and economy will be clearly demonstrated. Although the saving in labour will be considerable, and quickly return any outlay of capital, there are other and important features strongly recommending its adoption at all gas-works, and which a gas engineer upon examination will at once appreciate.

The Directors of the Alliance Gas Company have kindly consented to give every facility to gentlemen desirous of seeing the invention in operation. Parties, therefore, about to visit Dublin will be so good as to send us their card, and we will furnish them with letters of introduction.

Drawings, &c., may be seen at our Office, and all details explained.

JOHN CHISHOLM, SON, & CO., 44, MARK LANE, E.C.

TO CORPORATIONS, GAS ENGINEERS, AND OTHERS.

HENRY ALDER,

GRANGE METER-WORKS, EDINBURGH,

Begs to intimate that he is the ORIGINAL MANUFACTURER of

DRY GAS-METERS IN CAST-IRON CASES.

The Meters are protected by Registration on the 17th of December, 1864, under the "Copyright of Designs Act."

They are much more durable, and at the same time more easily repaired than those in Tin Cases.

PRICE LIST AND TERMS ON APPLICATION.

Agent for Ireland—Mr. J. FURNESS, 3, Fownes Street, DUBLIN.

N. DEFRIES,

INVENTOR OF THE FIRST SUCCESSFUL

DRY GAS-METER.

210,000 IN USE.

WORKS:

DIANA PLACE, EUSTON ROAD, LONDON.

OBSTRUCTION OF THE HIGHWAY BY LAYING GAS-MAINS.

Just published, price 2s., by post 2s. 1d.,

A REPORT

Of the Arguments in and the Judgment of the Court of Chancery in the case of the

CAMBRIDGE UNIVERSITY AND TOWN GASLIGHT COMPANY

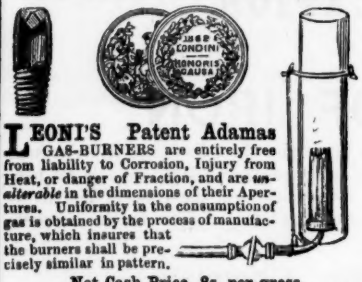
v.

CAMBRIDGE CONSUMERS GAS COMPANY LIMITED, AND OTHERS.

London: WILLIAM B. KING, 11, Bolt Court, FLEET STREET, E.C.

UNIVERSAL PARIS EXHIBITION, 1867.

PRIZE MEDAL in Class 24—Heating and Lighting—for Leoni's Patent Gas-Burners and Gas-Stoves.



LEONI'S Patent Adamas GAS-BURNERS are entirely free from liability to Corrosion, Injury from Heat, or danger of Fraction, and are *unalterable* in the dimensions of their Apertures. Uniformity in the consumption of gas is obtained by the process of manufacture, which insures that the burners shall be precisely similar in pattern.

Net Cash Price, 8s. per gross.

Patentee and Sole Manufacturer, S. LEONI, 34, St. Paul Street, New North Road, LONDON, N.

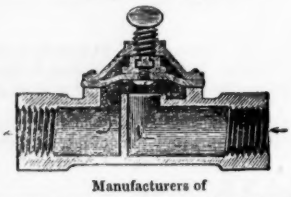
THOMAS LAMBERT & SON,

SHORT STREET, LAMBETH, LONDON.

CARTER'S SAFETY GAS-VALVES,

Made to suit every Description of Fittings.

Section of Valve open.



Manufacturers of

WROUGHT-IRON PIPES AND FITTINGS,

SLUICE-VALVES & STOP-COCKS,

STOCKS, TAPS, AND DIES,

CHANDELIERS, PENDANTS, &c.

PATENT MERCURIAL GAS-REGULATORS.

THOMAS CARR & SON,

MANUFACTURERS OF

FIRE-BRICKS, LUMPS, TILES, RETORTS,

&c. &c.

SCOTSWOOD FIRE-BRICK WORKS,

NEAR

BLAYDON-ON-TYNE.

HARRIS AND PEARSON,

STOURBRIDGE.

PROPRIETORS OF

BEST GLASS-HOUSE POT & CRUCIBLE CLAY.

MANUFACTURERS OF

FIRE-BRICKS, GAS-RETORTS, AND FIRE-CLAY GOODS

OF EVERY DESCRIPTION.

Orders of any magnitude, for home and exportation, executed with all possible despatch.

N.B.—A quantity of Retorts in stock.

Circulars, 15 in. and 16 in. Ovals, 20 in. by 14 in. D's, 15×13, 16×12, 18×14, 20×16, 21×14, 24×14.

OXIDE OF IRON,

We are prepared to supply, on moderate terms,

HYDRATED PEROXIDE OF IRON (BOG OCHRE),

Same quality as supplied by us to several of the most extensive Gas Companies, and which has given entire satisfaction.

FRANCIS RITCHIE & SONS,

BELFAST.

BIRTLEY IRON WORKS,

CHESTER-LE-STREET,

DURHAM.

Manufactory for every description of Casting and Machinery for Gas-Works and Water-Works.

Warehouse in London for Cast-iron Pipes and Connexions of all sizes and in any quantity, Scott's Wharf, Bankside, Southwark.

Office in London, Mr. E. M. PERKINS, 101, Cannon Street, E.C.

HENRY F. WILLEY,

(Manager for the late Mr. Vickary, of Exeter, 15 years,)

GAS ENGINEER AND CONTRACTOR.

WORKS: BARTHOLOMEW STREET, EXETER.

Improved Wet and Dry Meters. Gas Apparatus and Gas-Fittings Manufacturer.

Contractor for the Erection of Gas-Works, Gasholders, Station-Meters, Governors, and every article and apparatus appertaining to Gas-Works.

F. & C. OSLER,

45, OXFORD STREET, LONDON, W.

MANUFACTORY AND SHOW-ROOMS:

BROAD STREET, BIRMINGHAM.

ESTABLISHED 1807.

MANUFACTURERS OF CRYSTAL GLASS CHANDELIERS,

WALL LIGHTS, & LUSTRES FOR GAS & CANDLES.

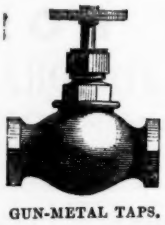
TABLE GLASS OF ALL KINDS.

CHANDELIERS IN BRONZE & ORMOLU. MODERATOR LAMPS.

MATHER AND PLATT,

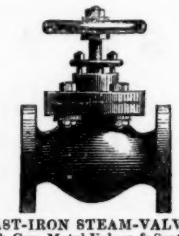
SALFORD IRON-WORKS, MANCHESTER,

Beg to call attention to their Revised List of Prices of VALVES, TAPS, &c. They also request the notice of Water Companies and Hydraulic Engineers to their IMPROVED SLUICE-VALVES for Water. The Slides have Gun-Metal Facings, are of wedge form, and when screwed down are tight on both sides.



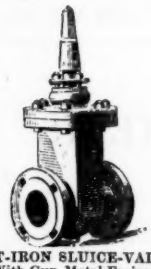
GUN-METAL TAPS.

Bore.	Price.
¾ inch	£0 4 0
1 ,,	0 4 6
1¼ ,,	0 6 0
1½ ,,	0 8 6
1¾ ,,	0 11 0
2 ,,	0 14 0
2½ ,,	0 18 0
3 ,,	1 2 6



CAST-IRON STEAM-VALVES. With Gun-Metal Valves & Seatings.

Bore.	Price.
2 inches	£1 2 6
3 ,,	1 17 6
4 ,,	2 15 0
5 ,,	3 15 0
6 ,,	4 17 0
7 ,,	6 0 0
8 ,,	7 5 0
9 ,,	8 15 0
10 ,,	10 10 0
11 ,,	12 5 0
12 ,,	14 0 0



CAST-IRON SLUICE-VALVES. With Gun-Metal Facings.

Bore.	Price.
2 inches	£1 10 0
3 ,,	2 5 0
4 ,,	3 0 0
5 ,,	3 16 0
6 ,,	4 14 0
7 ,,	5 14 0
8 ,,	6 16 0
9 ,,	8 0 0
10 ,,	9 6 0
11 ,,	10 14 0
12 ,,	12 4 0

Prices and particulars of all other forms and sizes can be had on application.

ROBERT DEMPSTER,

Gas Engineer and Contractor, Rose Mount Foundry, Elland, near Halifax.

R. D. recommends his Fire-Brick Retorts to Engineers and Managers of Gas Companies; they last from 10 to 12 years.

Iron and Fire-Clay Retorts.
Annular and Pipe Condensers.
Scrubbers and Purifiers, all sizes.
Steam-Engines and Exhausters.
Hydraulic Centre-Valves.
Station-Meters and Governors.
Photometers & Pressure-Gauges.
Lamp-posts and Brackets.
Cast-Iron Mains and Syphons.
Wrought-Iron Tubes, Water Tanks.
Wrought-Iron & Cast-Iron Roofs.
Gasholders, Single-Lift or Telescopic.
Gas Castings of every description.
Retort Setters and Fitters sent to all parts of the country.
Wood Sieves for Purifiers.

Plans and Specifications prepared.

GEORGE ANDERSON,

GAS AND CONSULTING ENGINEER,

19, NORTHUMBERLAND STREET, STRAND, W.C.

MR. ANDERSON advises Companies on all matters connected with the manufacture of Gas and the construction of Works.

PATENTEE and MANUFACTURER of the following Inventions:—

RETORT SETTINGS, heated by tar without the production of smoke.

STEAM-ENGINES and EXHAUSTERS, separately or combined.

FOUR-WAY VALVES, one of which is equal to three ordinary Valves.

STATION GOVERNORS—the Gasholder cannot tilt and cause accident.

BREEZE AND TAR FUEL MACHINE.

A Pamphlet containing Eighteen Illustrations of the foregoing, with letterpress on the construction of Works, post free, 2s. 6d.

N.B.—The second edition of this Work, *now ready*, contains illustrations of the Machine for converting Breeze and Tar into Fuel for heating the Retorts.

"The Author is well qualified to speak authoritatively upon the important subjects to which his pamphlet refers."—*Artizan.*

PARIS EXHIBITION,

1867.

HONOURABLE MENTION.

NEWTON AND BRADDOCK,

GLOBE METER-WORKS, OLDHAM,

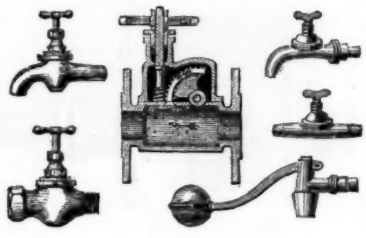
Manufacturers of

STATION METERS for GAS-WORKS, CONSUMERS METERS, GOVERNORS,

GAUGES, PRESSURE AND EXHAUSTER REGISTERS,

EXHAUSTER REGULATORS, &c.

N.B.—The flanges of the plates for the Square Station-Meters are planed so as to ensure perfect joints—guaranteed not to leak.



JOHN WARNER & SONS,

Bell and Brass Founders to Her Majesty,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

WARNERS'

PATENT QUADRANT-MOTION SLUICE OR GAS VALVE.

All the advantages of the ordinary sluice-valve are obtained at much less cost, and the liability to set fast and get out of order entirely obviated.

Particulars of the Quadrant Valve, also of Hydraulic Machinery, High or Low Pressure Cocks, Water-Closets, Gas-fitting in all its branches, and general Plumbers Brass-work, can be obtained upon application.

SCHOLL'S

PATENT PLATINUM

GASLIGHT PERFECTER.

Extract from Report by Dr. Letheby:—

"The results have been very remarkable, for they show an average increase of 63 per cent. on the illuminating power of the gas. I am of opinion, therefore, that the invention is of great practical value."

Price 1s. each for Fish-tail Burners.

To be had retail of Gas-Fitters and Ironmongers, and wholesale of

JOHN SCHOLL, 41 & 42, BERWICK STREET, OXFORD STREET

LONDON, W.

Terms on application. N.B.—A specimen sent free on receipt of Twelve stamps.

*** Further testimonials from Drs. Frankland and Crooks, showing the great practical value of this invention, will be shortly published.

JAMES MILNE & SON,

GAS ENGINEERS,

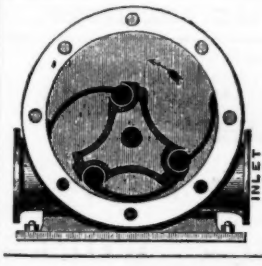
Gas-Meter, Gas Apparatus, and Gasfittings Manufacturers,

EDINBURGH, AND

2, KING EDWARD STREET,

NEWGATE STREET, LONDON.

Station-Meters, Governors, Consumers Meters, Gas Lustres, Chandeliers, Brackets, &c., and every description of Gasfittings and Gas Apparatus.



CHARLES HORSLEY'S

PATENT

GAS EXHAUSTER.

(From 250 Feet to 200,000 Feet per Hour.)

Also,

ROTARY TAR, OIL, AND LIQUOR PUMPS.

For particulars and prices apply to the Patentee,

22, Wharf Road, City Road, London, N.

SAMUEL CUTLER & SON,

CONTRACTING GAS ENGINEERS, &c.

MANUFACTURERS OF GASHOLDERS, TANKS, PURIFIERS,

AND ALL DESCRIPTIONS OF GAS-MAKING APPARATUS.

Iron Roofs, and General Iron Work. Mains Supplied and Laid.

S. C. & Son supply every requirement for a Gas-Work, and keep in stock Retort Lids, Cotters, Barrows, Scoops, Bolts and Nuts, &c. &c.

PROVIDENCE IRON-WORKS, MILLWALL, LONDON, E.

Now ready, price 21s., bound in cloth, lettered,

THE SEVENTEENTH VOLUME

OF THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, AND SANITARY IMPROVEMENT.

A Few Copies of Vols. III. to XVI. are still on Sale.

Cloth cases, gilt lettered, for binding Vol. XVII., are now ready, price 2s. 6d.

London: William B. King, 11, Bolt Court, Fleet Street, E.C.

Just Published, price 6d. each, by post 7d.; 4s. per doz., per post 4s. 6d.; or 25s. per 100,

PUBLIC LAMP ARBITRATION

AT GRAVESEND.

A REPORT OF THE PROCEEDINGS

In the above important case.

London: William B. King, 11, Bolt Court, Fleet Street, E.C.

Price 6d., by post 7d.,

ON THE PROPOSED

SUPPLY OF WATER TO THE METROPOLIS.

A Lecture Delivered at the Royal Institution of Great Britain,

By Dr. FRANKLAND, F.R.S.

Price 1s. 6d., by post 1s. 7d.,

DEFECTS IN THE APPARATUS GENERALLY USED FOR THE DETERMINATION OF

BISULPHIDE OF CARBON

IN

COAL GAS,

And Description of a New Apparatus for its Estimation.

By ALFRED G. ANDERSON, Esq.,

Professor of Chemistry and Practical Chemistry in Queen's College, Birmingham.

Price 1s. each, by post 1s. 1d.,

PROCEEDINGS IN PARLIAMENT ON THE

CAMBRIDGE GAS BILL,

AND

GREAT GRIMSBY & RICHMOND GAS BILLS.

Price 2s., by post 2s. 1d.,

SOUTHPORT, SHEFFIELD, PAIGNTON, LEEDS, & REDHILL WATER BILLS.

Price 8d. each, or 6s. per doz.,

Proceedings at Audit of Accounts of

SLOUGH LOCAL BOARD OF HEALTH.

London: William B. King, 11, Bolt Court, Fleet Street, E.C.

ELEVENTH THOUSAND.

AGRICULTURAL VALUE

OF

REFUSE GAS LIME.

By PROFESSOR VOELCKER,

Professor of Chemistry to the Royal Agricultural Society of England.

Price 10s. per 100, or by post, 10s. 6d.

London: William B. King, 11, Bolt Court, Fleet Street, E.C.

METROPOLIS GAS SUPPLY.

Just published, price 4s., by post 4s. 6d., 324 pages, cloth, lettered,

A FULL & COMPLETE REPORT

of the Proceedings (including the Speeches, Discussions, and Evidence) before a Select Committee of the House of Commons—Session 1867—on the

METROPOLIS GAS ACT AMENDMENT BILL,

With the Discussion upon the Second Reading of the Bill and the Report presented by the Committee to the House.

Also the Proceedings before the same Committee upon the Bills of the

IMPERIAL & CHARTERED COMPANIES

A Few Copies of the

PROCEEDINGS ON THE ARBITRATION

between the

GREAT CENTRAL GAS COMPANY

and

A. A. CROLL, ESQ.,

Are still for sale.

Price 5s., by post 5s. 6d., cloth, lettered.

London: William B. King, 11, Bolt Court, Fleet Street, E.C.

METROPOLIS WATER SUPPLY.

Just published, price 3s. 6d., by post 4s., cloth, lettered,

REPORT OF PROCEEDINGS

Before the Select Committee of the House of Commons—Session 1867—appointed on the

EAST LONDON WATER BILLS,

Who were instructed to inquire into the operation and results of the

METROPOLIS WATER ACT, 1852,

With an Analysis of the Report presented by the Committee to the House.

London: William B. King, 11, Bolt Court, Fleet Street, E.C.

SILVER MEDAL, INTERNATIONAL EXHIBITION, PARIS, 1867.

LLOYD AND LLOYD,

ALBION TUBE-WORKS, BIRMINGHAM,

MANUFACTURERS OF

WROUGHT-IRON TUBES & FITTINGS,

PLAIN, GALVANIZED, & ENAMELLED, for Gas, Steam, and Water, from ⅛ in. to 6 in. bore.

STOCKS, TAPS, and DIES, GUN METAL GLAND-COCKS, WATER-GAUGES, &c.

PATENT LAP-WELDED IRON TUBES

For Locomotive and Marine Boilers, &c.

LONDON WAREHOUSE—No 157, UPPER THAMES STREET. OFFICES—No 4, CLOAK LANE, E.C.

LIVERPOOL: No. 4, Cooper's Row, and No. 3, Crooked Lane, Strand Street.
MANCHESTER: Barlow's Croft, Chapel Street, Salford.
PARIS and LILLE.

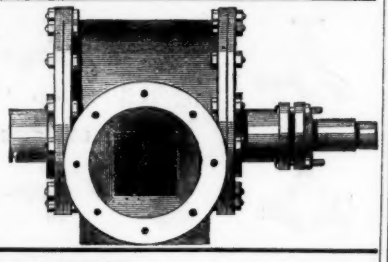
ROTATORY AND DOUBLE-ACTING GAS-EXHAUSTERS,

with many recent improvements, from 1500 to 150,000 cubic feet per Hour.

JAMES BURTON, SONS, & WALLER,

MAKERS OF ENGINES, MACHINERY, and IRONWORK for GAS-WORKS,
efficient and durable TAR, LIQUOR, and SYPHON PUMPS,
GAS-VALVES, with or without Wedges, worked with powerful Worm and Rack,
SELF-ACTING BY-PASS VALVES, with Lid and Relieving Lever,
ROTATORY, TUMBLER, and CAPILLARY WATER DISTRIBUTORS for SCRUBBERS.
SMALL-SIZE EXHAUSTERS KEPT IN STOCK.

JOHN'S PLACE, HOLLAND STREET, SOUTHWARK, LONDON, S.E.



WILLIAM INGHAM AND SONS,

WORTLEY FIRE-BRICK AND RETORT WORKS,

Near

Leeds.

W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of
RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY
beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas.
The Works are of such magnitude as to ensure the prompt execution of orders to any extent.

Estimates for Setting, or Bricklayers sent when required.

GAS OVENS IN SEGMENTS OF EQUAL QUALITY.

A large stock of Fire-Bricks, Fire-Clay, Terra Cotta, and Drain-Pipes of all sizes kept in London at CHRISTIE & CO.'s Wharf, 64, Bankside, Southwark, where all particulars of Prices, &c., may be obtained.

N.B.—*Export orders continue to have prompt attention.*

E. J. & J. PEARSON,

DELPH & TINTAM ABBEY FIRE-CLAY & BRICK-WORKS,

STOURBRIDGE,

PROPRIETORS OF

BEST GLASS-HOUSE POT & CRUCIBLE CLAY;

MANUFACTURERS OF

GLASS-HOUSE POTS, CRUCIBLES, GAS-RETORTS, & FIRE-BRICKS OF EVERY DESCRIPTION.

Established

1795.

JOSEPH CLIFF & SON,

THE ORIGINAL

WORTLEY FIRE-BRICK WORKS.

NEAR LEEDS,

MANUFACTURERS OF ALL DESCRIPTIONS OF

FIRE GOODS, and SALT-GLAZED DRAIN-PIPES.

LONDON AGENT:

MARCUS BOURNE NEWTON,

Wharf No. 4, inside Great Northern Goods Station, King's Cross,

Where is always kept a Stock of Retorts, Fire-Bricks, Terra Cotta Ware, and Drain-Pipes.

PARIS, 1867.

CLASSES 24 and 53.

WILLIAM SUGG,

GAS ENGINEER.

LONDON, 1862.

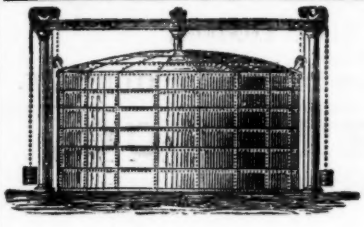
CLASSES 13 and 31.

PUBLIC LAMP GOVERNORS, LEVER COCKS, AND POLE LIGHTERS,

LAMP METERS AND BOXES.

LOWE'S JET PHOTOMETERS CAN NOW BE RATED TO 14 CANDLES.

VINCENT WORKS, VINCENT STREET, WESTMINSTER, S.W.



IMPROVED GAS APPARATUS,

FOR TOWNS. VILLAGES, &c.,

INVENTED AND MANUFACTURED BY

W. C. HOLMES & CO.,

WHITESTONE IRON-WORKS, HUDDERSFIELD.

WILL BE SENT ON APPLICATION:—

PLANS, SPECIFICATIONS, and PRICES of GAS APPARATUS;

PLANS, SPECIFICATIONS, and ESTIMATES of the requisite BUILDINGS for each size of Apparatus;

PLANS of the IMPROVED ANNULAR CONDENSERS;

PLANS of the COMBINED PURIFYING APPARATUS, so eminently adapted for Exportation.

LONDON OFFICES—56, GRACECHURCH STREET, CITY.

*** *Please address letters to the London Offices.*

ORLANDO BROTHERS'

SELF-ACTING DISTRICT GOVERNOR.

Prices, according to size, can be obtained upon application to

Mr. WILLIAM ARCHER,

METER COMPANY'S WORKS, OLDHAM.

THE ONLY COMPLETE CAST-IRON CASED DRY GAS-METER,

PATENTED MARCH 31, 1865.

Gas Engineers and others will find that the above Meter is made of the most durable material, also that it can be repaired at a fraction of the cost of any other Meter now manufactured; all the interior fittings, as well as the case, being fitted together with screws.

Drawings explanatory of the above on application.

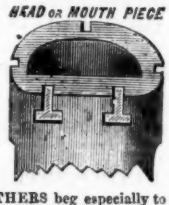
SOLE MANUFACTURERS:

FULLERTON, SON, & CO., ABBEY MOUNT WORKS, EDINBURGH.

Station-Meters and Gas Apparatus, Consumers Wet Gas-Meters in Cast-Iron, and Dry in Tin Plate Cases.

KING BROTHERS,

STOURBRIDGE FIRE-BRICK AND RETORT WORKS.

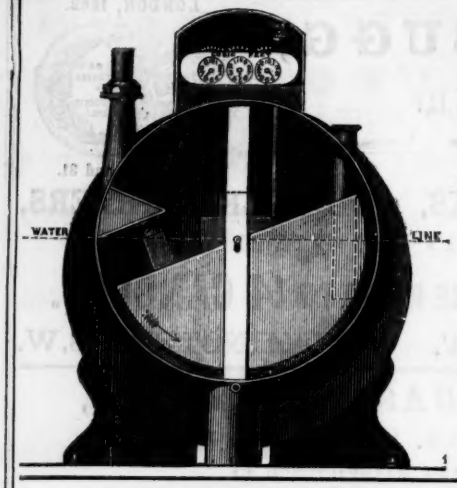


KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them FREE FROM CRACKS AND CORRECT IN FORM. By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

Retort Ovens, Fire-Bricks, Guards, Saddles, Rabbitted Bars, Flues, and Quarries, are all Manufactured of the same quality of Clay.

Every Retort and Brick is branded "King Brothers, Stourbridge."

Agent in Ireland—Mr. JAMES FURNISS, No. 3, FOWNES STREET, DUBLIN.



THE
UNVARYING WATER-LINE GAS-METER.
(SANDERS AND DONOVAN'S PATENT.)

"Unquestionably the best Water Gas-Meter now in use."

Over 60,000 in action.

MANUFACTURERS:
THE GAS-METER COMPANY,
KINGSLAND ROAD, LONDON;
WITH
Branch Manufactories at DUBLIN & OLDHAM.

ALEXANDER WRIGHT & CO.,
55 and 55A, MILLBANK STREET, WESTMINSTER, S.W.,
MANUFACTURERS OF
COMPENSATING & OTHER WET & IMPROVED DRY GAS-METERS,
Of the best material and workmanship, carefully adjusted to meet the requirements of the SALES OF GAS ACT.
STATION-METERS & GOVERNORS,
WRIGHT'S REGISTERING PRESSURE-GAUGE, EXHAUSTER REGISTER, & REGULATOR
STANDARD TEST GASHOLDERS;
Consumers' Governors; Inspectors' Pocket, King's, and all other kinds of Pressure-Gauges; Thermometers for Condensers, Pressure Registers, &c., &c.
STANDARD PHOTOMETRIC AND OTHER TESTING APPARATUS,
Employed by the best experimenters in this country and on the Continent, and by the Gas Testers in the London districts.
STREET-LAMP REGULATORS OF THE BEST CONSTRUCTION,
Adjusted to any desired consumption.

R. LAIDLAW & SON,
GAS ENGINEERS, CONTRACTORS, IRON & BRASS FOUNDERS,
Iron-Works and Foundries, GLASGOW, (190, Strand,) LONDON, Meter-Works & Brass Foundry, EDINBURGH,
MANUFACTURERS OF
GASOMETERS AND GAS APPARATUS OF EVERY DESCRIPTION;
CAST-IRON PIPES, all sizes, cast in DRY SAND and VERTICALLY by PATENT MACHINERY;
IRON ROOFS, COLUMNS, BEAMS, and GIRDERS; BOILERS, TANKS, and CISTERNS;
VALVES, Screw, Rack and Pinion, &c., for Gas and Water, with Iron or Gun-Metal Facings, &c.;
WROUGHT-IRON TUBE and FITTINGS for Gas, Water, or Steam;
GAS-METERS (Wet and Dry) of the most approved Construction, STATION-METERS, GOVERNORS, &c.;
GASELIERS, BRACKETS, PENDANTS, PILLARS, and GAS-FITTINGS of every description;
LAMP-POSTS and LANTERNS for Streets, &c.

D. HULETT and CO., 55 and 56, HIGH HOLBORN, LONDON,
PATENTEES and MANUFACTURERS of the ONLY GOOD MERCURIAL GAS REGULATOR,
invite the attention of Gas Companies and the Trade generally to their Improved GAS-METERS, which they warrant equal to any in Quality, Workmanship, and Simplicity of Construction, and the only Meters from which Gas cannot be obtained without being duly registered.
MANUFACTURERS OF
GAS CHANDELIERS, GLASS LUSTRES, HALL LANTERNS, VESTIBULES, BRACKETS, PENDANTS;
DOUBLE CONE, ALBERT, SHADOWLESS, & EVERY DESCRIPTION OF BURNER, UNION JETS, BATSWINGS, ETC.;
IMPROVED FULL-WAY CARTER'S VALVES (much approved of);
GAS-STOVES, and every article connected with Gas Apparatus.
CAST & WROUGHT-IRON PIPE BLACK & GALVANIZED. COPPER, TIN, BRASS, & COMPOSITION TUBING.
D. HULETT'S IMPROVED SERVICE CLEANSER
for clearing out Mains, Services, and Interior Fittings—65s. net.
Boyle's Patent Silvered Glass Combination Reflectors and Outside Lanterns.
Sole Manufacturers of Church and Mann's Photometer.
Large Pattern Books with every description of Gas-Fittings, Chandeliers, &c., with complete Book of Prices, 12s.

London: Printed by WILLIAM BOUGHTON KING (at the office of Clayton and Co., 17, Bouverie Street, Fleet Street); and published by him at No. 11, Bolt Court, Fleet Street, in the City of London.—Tuesday, January 5, 1869.